BANK OF AMERICA CORP /DE/
Form 10-Q
July 31, 2017

## UNITED STATES

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q
(Mark One)
[ü] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES

## EXCHANGE ACT OF 1934

For the Quarterly Period Ended June 30, 2017
or
[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934
For the transition period from to
Commission file number:
1-6523
Exact name of registrant as specified in its charter:
Bank of America Corporation
State or other jurisdiction of incorporation or organization:
Delaware
IRS Employer Identification No.:
56-0906609
Address of principal executive offices:
Bank of America Corporate Center
100 N. Tryon Street
Charlotte, North Carolina 28255
Registrant's telephone number, including area code:
(704) 386-5681

Former name, former address and former fiscal year, if changed since last report:
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ü No
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§
232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes ü No
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act (check one).

Non-accelerated filer
Large accelerated filer $\ddot{u}$ Accelerated filer (do not check if a smaller Smaller reporting company reporting company)
Emerging growth company
Yes Noü
If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the

Exchange Act.
Yes No
Indicate by check mark whether the registrant is a shell company (as defined in Exchange Act Rule 12b-2). Yes No ü
On July 28, 2017, there were 9,850,580,344 shares of Bank of America Corporation Common Stock outstanding.
Bank of America Corporation and Subsidiaries
June 30, 2017
Form 10-Q
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Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations
Bank of America Corporation (the "Corporation") and its management may make certain statements that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as "anticipates," "targets," "expects," "hopes," "estimates," "intends," "plans," "goals," "belie "continue" and other similar expressions or future or conditional verbs such as "will," "may," "might," "should," "would" and
"could." Forward-looking statements represent the Corporation's current expectations, plans or forecasts of its future results, revenues, expenses, efficiency ratio, capital measures, and future business and economic conditions more generally, and other future matters. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond the Corporation's control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements.
You should not place undue reliance on any forward-looking statement and should consider the following uncertainties and risks, as well as the risks and uncertainties more fully discussed under Item 1A. Risk Factors of our 2016 Annual Report on Form 10-K and in any of the Corporation's subsequent Securities and Exchange Commission filings: potential claims, damages, penalties, fines and reputational damage resulting from pending or future litigation, regulatory proceedings, or enforcement actions, including inquiries into our retail sales practices, and the possibility that amounts may be in excess of the Corporation's recorded liability and estimated range of possible loss for litigation exposures; the possibility that the Corporation could face increased servicing, securities, fraud, indemnity, contribution or other claims from one or more counterparties, including trustees, purchasers of loans, underwriters, issuers, other parties involved in securitizations, monolines or private-label and other investors; the possibility that future representations and warranties losses may occur in excess of the Corporation's recorded liability and estimated range of possible loss for its representations and warranties exposures; the Corporation's ability to resolve representations and warranties repurchase and related claims, including claims brought by investors or trustees seeking to avoid the statute of limitations for repurchase claims; uncertainties about the financial stability and growth rates of non-U.S. jurisdictions, the risk that those jurisdictions may face difficulties servicing their sovereign debt, and related stresses on financial markets, currencies and trade, and the Corporation's exposures to such risks, including direct, indirect and operational; the impact of U.S. and global interest rates, currency exchange rates
and economic conditions; the impact on the Corporation's business, financial condition and results of operations of a potential higher interest rate environment; the possibility that future credit losses may be higher than currently expected due to changes in economic assumptions, customer behavior, adverse developments with respect to U.S. or global economic conditions, and other uncertainties; the impact on the Corporation's business, financial condition and results of operations from a protracted period of lower oil prices or ongoing volatility with respect to oil prices; the Corporation's ability to achieve its expense targets or net interest income expectations or other projections or expectations; adverse changes to the Corporation's credit ratings from the major credit rating agencies; estimates of the fair value of certain of the Corporation's assets and liabilities; uncertainty regarding the content, timing and impact of regulatory capital and liquidity requirements, including the approval of our internal models methodology for calculating counterparty credit risk for derivatives; the potential impact of total loss-absorbing capacity requirements; potential adverse changes to our global systemically important bank (G-SIB) surcharge; the potential impact of Federal Reserve actions on the Corporation's capital plans; the possible impact of the Corporation's failure to remediate shortcomings identified by banking regulators in the Corporation's Resolution Plan; the impact of implementation and compliance with U.S. and international laws, regulations and regulatory interpretations, including,

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but not limited to, recovery and resolution planning requirements, Federal Deposit Insurance Corporation (FDIC) assessments, the Volcker Rule, fiduciary standards and derivatives regulations; a failure in or breach of the Corporation's operational or security systems or infrastructure, or those of third parties, including as a result of cyberattacks; the impact on the Corporation's business, financial condition and results of operations from the planned exit of the United Kingdom (U.K.) from the European Union (EU); and other similar matters.
Forward-looking statements speak only as of the date they are made, and the Corporation undertakes no obligation to update any forward-looking statement to reflect the impact of circumstances or events that arise after the date the forward-looking statement was made.
Notes to the Consolidated Financial Statements referred to in the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD\&A) are incorporated by reference into the MD\&A. Certain prior-period amounts have been reclassified to conform to current-period presentation. Throughout the MD\&A, the Corporation uses certain acronyms and abbreviations which are defined in the Glossary.

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## Executive Summary

Business Overview
The Corporation is a Delaware corporation, a bank holding company (BHC) and a financial holding company. When used in this report, "the Corporation" may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation's subsidiaries or affiliates. Our principal executive offices are located in Charlotte, North Carolina. Through our banking and various nonbank subsidiaries throughout the U.S. and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments: Consumer Banking, Global Wealth \& Investment Management (GWIM), Global Banking and Global Markets, with the remaining operations recorded in All Other. We operate our banking activities primarily under the Bank of America, National Association (Bank of America, N.A. or BANA) charter. At June 30, 2017, the Corporation had approximately $\$ 2.3$ trillion in assets and a headcount of approximately 211,000 employees. Headcount remained relatively unchanged since December 31, 2016. Beginning in the second quarter of 2017, we changed from reporting full-time equivalent employees to reporting headcount. Prior-period amounts have been reclassified.
As of June 30, 2017, we operated in all 50 states, the District of Columbia, the U.S. Virgin Islands, Puerto Rico and more than 35 countries. Our retail banking footprint covers approximately 83 percent of the U.S. population, and we serve approximately 47 million consumer and small business relationships with approximately 4,500 retail financial centers, approximately 16,000 ATMs, and leading digital banking platforms (www.bankofamerica.com) with approximately 34 million active users, including 23 million mobile active users. We offer industry-leading support to approximately three million small business owners. Our wealth management businesses, with client balances of approximately $\$ 2.6$ trillion, provide tailored solutions to meet client needs through a full set of investment management, brokerage, banking, trust and retirement products. We are a global leader in corporate and investment banking and trading across a broad range of asset classes serving corporations, governments, institutions and individuals around the world.
Second Quarter 2017 Economic and Business Environment
Macroeconomic trends in the U.S. in the second quarter were characterized by continued economic growth and low inflation, after GDP growth decelerated in the first quarter. Consumer and business attitudes on the economy have remained broadly unchanged from the high historical levels reached in the first quarter. The labor market remained healthy, with sustained strong non-farm payroll gains in the second quarter. Contrary to the Federal Open Market Committee projections, inflation fell during the quarter as year-over-year growth in headline CPI decreased by approximately half a percentage point. In June, the Federal Reserve raised its target federal funds rate corridor, in line with market
expectations. Financial markets also responded to several ongoing developments: first, in response to the June rate hike and the potential for additional hikes over 2017, the Treasury yield curve continued to flatten. Second, the equity markets continued to rally, albeit with weaker momentum, with the S\&P 500 index gaining over 2.5 percent. The U.S. Dollar weakened, erasing all the gains that followed the November presidential election.

Abroad, after eurozone GDP grew in the first quarter at the fastest pace in two years, the recovery continued to gain momentum; although, political uncertainty remained elevated ahead of the French elections. The more robust economic momentum has failed to translate into stronger inflationary pressures, which remained depressed over the quarter. As a result, the European Central Bank remained cautious about the outlook for monetary policy and its quantitative easing program despite the improved growth outlook.
The U.K. gained center-stage on both the economic and political front. The impact of Brexit has started to materialize in the economy with the first quarter GDP growth coming close to stagnation and many indicators weakening further over the second quarter, albeit still pointing to positive growth. At the same time, inflation continued in an upward trend and reached the highest level since 2012, well above the Bank of England target, driven by the pass-through from the Sterling depreciation that followed the Brexit referendum.
In Japan, economic momentum remained intact in the second quarter, though business investment had slowed early in the year. The monetary policy stance remained unchanged while underlying inflation strengthened slightly over the quarter. In China, the service sector remained a key driver of economic growth. The Yuan had a volatile quarter
reaching a seven-month high in June which contributed to a softening of supply chain inflationary pressures over the quarter.

## Recent Events

Capital Management
On June 28, 2017, following the Federal Reserve's non-objection to our 2017 Comprehensive Capital Analysis and Review (CCAR) capital plan, the Board of Directors (the Board) authorized the repurchase of $\$ 12.9$ billion in common stock from July 1, 2017 through June 30, 2018, including approximately $\$ 900$ million to offset the effect of equity-based compensation plans during the same period. The common stock repurchase authorization includes both common stock and warrants. Also in connection with the non-objection to our CCAR plan, on July 26, 2017, the Board declared a quarterly common stock dividend of $\$ 0.12$ per share, payable on September 29, 2017 to shareholders of record as of September 1, 2017. For additional information, see the Corporation's Current Report on Form 8-K filed on June 28, 2017.
During the second quarter of 2017, we repurchased approximately $\$ 2.2$ billion of common stock pursuant to the Board's repurchase authorizations announced on June 29, 2016 and January 13, 2017. These repurchase authorizations expired on June 30, 2017. For additional information, see Capital Management on page 28.
Sale of Non-U.S. Consumer Credit Card Business
On June 1, 2017, the Corporation completed the previously-announced sale of its non-U.S. consumer credit card business to a third party and recorded an after-tax gain of $\$ 103$ million. As previously disclosed, the sale improved our transitional Basel 3 Common equity tier 1 capital ratio by 11 basis points (bps) under the Advanced approaches and 15 bps under the Standardized approach. This sale completes the transformation of our consumer credit card business from a multi-country, multi-brand business to a single-brand business serving core retail customers in the United States. For more information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.

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## Series T Preferred Stock

In connection with an investment in the Corporation's Series T preferred stock in 2011, the holder of the Series T 6\% Non-cumulative Preferred Stock (Series T preferred stock) received warrants to purchase up to 700 million shares of the Corporation's common stock at an exercise price of $\$ 7.142857$ per share. The holder of the Series T preferred stock publicly announced on June 30, 2017, consistent with similar statements made in its 2016 Annual Report to Shareholders, that it intends to exercise the warrants and acquire all 700 million shares of our common stock using the Series T preferred stock to satisfy the exercise price
given its expectation of an increase in our common stock dividend. Upon exercise of the warrants, common shares outstanding will increase; however, there will be no effect on diluted earnings per share as this conversion has been previously included in the Corporation's diluted earnings per share calculation.
Selected Financial Data
Table 1 provides selected consolidated financial data for the three and six months ended June 30, 2017 and 2016, and at June 30, 2017 and December 31, 2016.

Table 1 Selected Financial Data

|  | Three Months Ended June 30 |  | Six Months Ended June 30 |  |
| :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions, except per share information) | 2017 | 2016 | 2017 | 2016 |
| Income statement |  |  |  |  |
| Revenue, net of interest expense | \$22,829 | \$21,286 | \$45,077 | \$ 42,076 |
| Net income | 5,269 | 4,783 | 10,125 | 8,255 |
| Diluted earnings per common share | 0.46 | 0.41 | 0.87 | 0.68 |
| Dividends paid per common share | 0.075 | 0.05 | 0.15 | 0.10 |
| Performance ratios |  |  |  |  |
| Return on average assets | 0.93 | \% 0.88 \% | \% 0.91 | \% 0.76 \% |
| Return on average common shareholders' equity | 8.00 | 7.40 | 7.64 | 6.26 |
| Return on average tangible common shareholders' equity ${ }^{(1)}$ | 11.23 | 10.54 | 10.76 | 8.95 |
| Efficiency ratio | 60.13 | 63.38 | 63.39 | 67.28 |
|  |  |  | June 30 | December 31 |
|  |  |  | 2017 | 2016 |
| Balance sheet |  |  |  |  |
| Total loans and leases |  |  | \$916,666 | \$ 906,683 |
| Total assets |  |  | 2,254,529 | 2,187,702 |
| Total deposits |  |  | 1,262,980 | 1,260,934 |
| Total common shareholders' equity |  |  | 245,767 | 241,620 |
| Total shareholders' equity |  |  | 270,987 | 266,840 |

Return on average tangible common shareholders' equity is a non-GAAP financial measure. For additional
${ }^{(1)}$ information and a corresponding reconciliation to accounting principles generally accepted in the United States of America (GAAP) financial measures, see Non-GAAP Reconciliations on page 67.
Financial Highlights
Net income was $\$ 5.3$ billion and $\$ 10.1$ billion, or $\$ 0.46$ and $\$ 0.87$ per diluted share for the three and six months ended June 30 , 2017 compared to $\$ 4.8$ billion and $\$ 8.3$ billion, or $\$ 0.41$ and $\$ 0.68$ per diluted share for the same periods in

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2016. The results for the three and six months ended June 30, 2017 compared to the same periods in 2016 were driven by higher revenue and lower provision for credit losses and an increase in noninterest expense.
Total assets increased $\$ 66.8$ billion from December 31, 2016 to $\$ 2.3$ trillion at June 30, 2017 due to higher trading account assets primarily driven by increased client financing activities in equities, growth in securities borrowed or purchased under agreements to resell primarily due to increased matched-book
activity, as well as higher cash and cash equivalents and loans and leases. These increases were partially offset by the impact of the sale of the non-U.S. consumer credit card business. Total liabilities increased $\$ 62.7$ billion from December 31, 2016 to $\$ 2.0$ trillion at June 30, 2017 primarily driven by higher securities loaned or sold under agreements to repurchase due to increased matched-book activity, an increase in trading account liabilities as well as an increase in short-term borrowings. Shareholders' equity increased $\$ 4.1$ billion from December 31, 2016 primarily due to net income, partially offset by returns of capital to shareholders of $\$ 7.3$ billion through common stock repurchases and common and preferred stock dividends.
[^0]Table 2 Summary Income Statement
(Dollars in millions)
Net interest income
Noninterest income
Total revenue, net of interest
expense
Provision for credit losses
Noninterest expense
Income before income taxes
Income tax expense
Net income
Preferred stock dividends
Net income applicable to common shareholders
Three Months Six Months

Ended June 30 Ended June 30
2017201620172016
\$10,986 \$10,118 \$22,044 \$20,603
$11,843 \quad 11,168 \quad 23,033 \quad 21,473$
$22,829 \quad 21,286 \quad 45,077 \quad 42,076$
$726 \quad 976 \quad 1,561 \quad 1,973$
$\begin{array}{llll}13,726 & 13,493 & 28,574 & 28,309\end{array}$
$\begin{array}{llll}8,377 & 6,817 & 14,942 & 11,794\end{array}$
$\begin{array}{llll}3,108 & 2,034 & 4,817 & 3,539\end{array}$
$5,269 \quad 4,783 \quad 10,125 \quad 8,255$
$\begin{array}{llll}361 & 361 & 863 & 818\end{array}$
$\begin{array}{llll}\$ 4,908 & \$ 4,422 & \$ 9,262 & \$ 7,437\end{array}$

Per common share information
Earnings

| $\$ 0.49$ | $\$ 0.43$ | $\$ 0.92$ | $\$ 0.72$ |
| :--- | :--- | :--- | :--- |
| 0.46 | 0.41 | 0.87 | 0.68 |

Diluted earnings

| 0.46 | 0.41 | 0.87 | 0.68 |
| :--- | :--- | :--- | :--- |

Net Interest Income
Net interest income increased $\$ 868$ million to $\$ 11.0$ billion, and $\$ 1.4$ billion to $\$ 22.0$ billion for the three and six months ended June 30, 2017 compared to the same periods in 2016. The net interest yield increased 11 bps to 2.29 percent, and nine bps to 2.32 percent. These increases were primarily driven by a higher interest rate environment and loan growth. For more information regarding interest rate risk management, see Interest Rate Risk Management for the Banking Book on page 63.
Noninterest Income

Table 3 Noninterest Income


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Service charges increased $\$ 106$ million and $\$ 187$ million primarily driven by the impact of pricing strategies and higher treasury services-related revenue.
Investment and brokerage services income increased $\$ 116$ million and $\$ 196$ million primarily driven by higher assets under management (AUM) flows and market valuations, partially offset by lower transactional revenue.
Investment banking income increased $\$ 124$ million and $\$ 555$ million primarily due to higher advisory fees, and for the six month period, higher debt and equity issuance fees.
Trading account profits decreased $\$ 62$ million for the three-month period primarily due to weaker performance across fixed-income products, and increased $\$ 607$ million for the six-month period primarily due to stronger performance across credit products led by mortgages, and increased client financing activity in equities.

Mortgage banking income decreased $\$ 82$ million and $\$ 393$ million primarily due to lower production income driven by lower volumes and net servicing income due to a smaller servicing portfolio.
Gains on sales of debt securities decreased $\$ 148$ million and $\$ 286$ million primarily driven by lower sales volume. Other income increased $\$ 616$ million and $\$ 670$ million primarily due to the $\$ 793$ million pre-tax gain recognized in connection with the sale of the non-U.S. consumer credit card business.
Provision for Credit Losses
The provision for credit losses decreased $\$ 250$ million to $\$ 726$ million, and $\$ 412$ million to $\$ 1.6$ billion for the three and six months ended June 30, 2017 compared to the same periods in 2016 primarily due to credit quality improvements in the consumer real estate portfolio and reductions in energy exposures in the commercial portfolio, partially offset by portfolio seasoning and loan growth in the U.S. credit card portfolio. For more information on the provision for credit losses, see Provision for Credit Losses on page 57.

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## Noninterest Expense

Table 4 Noninterest Expense

|  | Three Months <br> Ended June 30 |  | Six Months <br> Ended June 30 |  |
| :--- | :--- | :--- | :--- | :--- |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 |
| Personnel | $\$ 7,712$ | $\$ 7,722$ | $\$ 16,870$ | $\$ 16,574$ |
| Occupancy | 1,001 | 1,036 | 2,001 | 2,064 |
| Equipment | 427 | 451 | 865 | 914 |
| Marketing | 442 | 414 | 774 | 833 |
| Professional fees | 485 | 472 | 941 | 897 |
| Amortization of intangibles | 160 | 186 | 322 | 373 |
| Data processing | 773 | 717 | 1,567 | 1,555 |
| Telecommunications | 177 | 189 | 368 | 362 |
| Other general operating | 2,549 | 2,306 | 4,866 | 4,737 |
| Total noninterest expense | $\$ 13,726$ | $\$ 13,493$ | $\$ 28,574$ | $\$ 28,309$ |

Noninterest expense increased $\$ 233$ million to $\$ 13.7$ billion, and $\$ 265$ million to $\$ 28.6$ billion for the three and six months ended June 30, 2017 compared to the same periods in 2016. The increases were primarily due to higher other general operating expense which included a $\$ 295$ million impairment charge related
to certain data centers in the process of being sold and higher FDIC expense, partially offset by lower litigation expense. The increase in the six-months period was also driven by an increase in personnel expense due in part to higher revenue-related incentive costs.
Income Tax Expense
Table 5 Income Tax Expense


The effective tax rates for both the three and six months ended June 30, 2017 were driven by the impact of our recurring tax preference benefits, offset by $\$ 690$ million of tax expense recognized in connection with the sale of the non-U.S. consumer credit card business, which related to gains on derivatives used
to hedge the currency risk of the net investment. The six-month effective tax rate also included a tax benefit related to a new accounting standard on share-based compensation. The effective tax rates for the three and six months ended June 30, 2016 were driven by our recurring tax preference items.

Table 6 Selected Quarterly Financial Data

| (Dollars in millions, except per share information) | 2017 Quarters |  | 2016 Quarters |  | Second |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Second | First | Fourth | Third |  |
| Income statement |  |  |  |  |  |
| Net interest income | \$10,986 | \$ 11,058 | \$ 10,292 | \$ 10,201 | \$ 10,118 |
| Noninterest income | 11,843 | 11,190 | 9,698 | 11,434 | 11,168 |
| Total revenue, net of interest expense | 22,829 | 22,248 | 19,990 | 21,635 | 21,286 |
| Provision for credit losses | 726 | 835 | 774 | 850 | 976 |
| Noninterest expense | 13,726 | 14,848 | 13,161 | 13,481 | 13,493 |
| Income before income taxes | 8,377 | 6,565 | 6,055 | 7,304 | 6,817 |
| Income tax expense | 3,108 | 1,709 | 1,359 | 2,349 | 2,034 |
| Net income | 5,269 | 4,856 | 4,696 | 4,955 | 4,783 |
| Net income applicable to common shareholders | 4,908 | 4,354 | 4,335 | 4,452 | 4,422 |
| Average common shares issued and outstanding | 10,014 | 10,100 | 10,170 | 10,250 | 10,328 |
| Average diluted common shares issued and outstanding | 10,822 | 10,915 | 10,959 | 11,000 | 11,059 |
| Performance ratios |  |  |  |  |  |
| Return on average assets | 0.93 | \% 0.88 | \% 0.85 | \% 0.90 | \% 0.88 \% |
| Four quarter trailing return on average assets ${ }^{(1)}$ | 0.89 | 0.88 | 0.82 | 0.76 | 0.74 |
| Return on average common shareholders equity | 8.00 | 7.27 | 7.04 | 7.27 | 7.40 |
| Return on average tangible common shareholders' equity ${ }^{(2)}$ | 11.23 | 10.28 | 9.92 | 10.28 | 10.54 |
| Return on average shareholders' equity | 7.79 | 7.35 | 6.91 | 7.33 | 7.25 |
| Return on average tangible shareholders' equity ${ }^{(2)}$ | 10.54 | 10.00 | 9.38 | 9.98 | 9.93 |
| Total ending equity to total ending assets | 12.02 | 11.93 | 12.20 | 12.30 | 12.23 |
| Total average equity to total average assets | 11.95 | 12.01 | 12.24 | 12.28 | 12.13 |
| Dividend payout | 15.25 | 17.37 | 17.68 | 17.32 | 11.73 |
| Per common share data |  |  |  |  |  |
| Earnings | \$0.49 | \$0.43 | \$0.43 | \$0.43 | \$0.43 |
| Diluted earnings | 0.46 | 0.41 | 0.40 | 0.41 | 0.41 |
| Dividends paid | 0.075 | 0.075 | 0.075 | 0.075 | 0.05 |
| Book value | 24.88 | 24.36 | 24.04 | 24.19 | 23.71 |
| Tangible book value ${ }^{(2)}$ | 17.78 | 17.23 | 16.95 | 17.14 | 16.71 |
| Market price per share of common stock |  |  |  |  |  |
| Closing | \$24.26 | \$23.59 | \$22.10 | \$15.65 | \$13.27 |
| High closing | 24.32 | 25.50 | 23.16 | 16.19 | 15.11 |
| Low closing | 22.23 | 22.05 | 15.63 | 12.74 | 12.18 |
| Market capitalization | \$239,643 | \$235,291 | \$222,163 | \$158,438 | \$135,577 |

(1) Calculated as total net income for four consecutive quarters divided by annualized average assets for four consecutive quarters.
(2)

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Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For more information on these ratios and for corresponding reconciliations to GAAP financial measures, see Non-GAAP Reconciliations on page 67.
${ }_{\text {(3) }}$ For more information on the impact of the purchased credit-impaired (PCI) loan portfolio on asset quality, see Consumer Portfolio Credit Risk Management on page 39.
${ }^{(4)}$ Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments.
Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management -
${ }^{(5)}$ Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 47 and corresponding Table 33, and Commercial Portfolio Credit Risk Management - Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 52 and corresponding Table 40.
Asset quality metrics include $\$ 242$ million and $\$ 243$ million of non-U.S. credit card allowance for loan and lease losses and $\$ 9.5$ billion and $\$ 9.2$ billion of non-U.S. credit card loans in the first quarter of 2017 and in the fourth
${ }^{(6)}$ quarter of 2016, which were included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
(7)

Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
Net charge-offs exclude $\$ 55$ million, $\$ 33$ million, $\$ 70$ million, $\$ 83$ million, and $\$ 82$ million of write-offs in the PCI loan portfolio in the second and first quarters of 2017, and in the fourth, third and second quarters of 2016, respectively. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.
Includes net charge-offs of $\$ 44$ million and $\$ 41$ million on non-U.S. credit card loans in the first quarter of 2017
${ }^{(9)}$ and in the fourth quarter of 2016, which were included in assets of business held for sale on the Consolidated Balance Sheet at March 31, 2017 and December 31, 2016.
(10) Risk-based capital ratios are reported under Basel 3 Advanced - Transition. For additional information, see Capital Management on page 28.

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Table 6 Selected Quarterly Financial Data (continued)

| (Dollars in millions) | 2017 Quarters |  | 2016 Quarters |  | Second |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Second | First | Fourth | Third |  |
| Average balance sheet |  |  |  |  |  |
| Total loans and leases | \$914,717 | \$914,144 | \$908,396 | \$900,594 | \$899,670 |
| Total assets | 2,269,153 | 2,231,420 | 2,208,039 | 2,189,490 | 2,188,241 |
| Total deposits | 1,256,838 | 1,256,632 | 1,250,948 | 1,227,186 | 1,213,291 |
| Long-term debt | 224,019 | 221,468 | 220,587 | 227,269 | 233,061 |
| Common shareholders' equity | 246,003 | 242,883 | 245,139 | 243,679 | 240,376 |
| Total shareholders' equity | 271,223 | 268,103 | 270,360 | 268,899 | 265,354 |
| Asset quality ${ }^{(3)}$ |  |  |  |  |  |
| Allowance for credit losses ${ }^{(4)}$ | \$11,632 | \$11,869 | \$11,999 | \$12,459 | \$12,587 |
| Nonperforming loans, leases and foreclosed properties ${ }^{(5)}$ | 7,127 | 7,637 | 8,084 | 8,737 | 8,799 |
| $\begin{aligned} & \text { Allowance for loan and lease losses as a percentage of } \\ & \text { total loans and leases outstanding }(5,6)\end{aligned}$1.20 $\quad \% 1.25 \quad \% \quad 1.26 \quad \% \quad 1.30 \quad \% \quad 1.32$ |  |  |  |  |  |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases $(5,6)$ | $\mathrm{f}_{160}$ | 156 | 149 | 140 | 142 |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the PCI loan portfolio ${ }^{(5,6)}$ | 154 | 150 | 144 | 135 | 135 |
| Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases ${ }^{(7)}$ | \$3,782 | \$4,047 | \$3,951 | \$4,068 | \$4,087 |
| Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases ${ }^{(5,7)}$ | 104 | \% 100 | \% 98 | \% 91 | \% 93 |
| Net charge-offs ${ }^{(8,9)}$ | \$908 | \$934 | \$880 | \$888 | \$985 |
| Annualized net charge-offs as a percentage of average loans and leases outstanding $(5,8)$ | 0.40 | \% 0.42 | \% 0.39 | \% 0.40 | \% 0.44 |
| Annualized net charge-offs as a percentage of average loans and leases outstanding, excluding the PCI loan portfolio ${ }^{(5)}$ | 0.41 | 0.42 | 0.39 | 0.40 | 0.45 |
| Annualized net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (5) | 0.43 | 0.43 | 0.42 | 0.43 | 0.48 |
| Nonperforming loans and leases as a percentage of total loans and leases outstanding (5, 6) | 0.75 | 0.80 | 0.85 | 0.93 | 0.94 |
| Nonperforming loans, leases and foreclosed properties as a percentage of total loans, leases and foreclosed properties ${ }^{(5,6)}$ | 0.78 | 0.84 | 0.89 | 0.97 | 0.98 |
| Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs $(6,8)$ | 2.99 | 3.00 | 3.28 | 3.31 | 2.99 |
| Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs, excluding the PCI loan portfolio ${ }^{(6)}$ | 2.88 | 2.88 | 3.16 | 3.18 | 2.85 |
|  | 2.82 | 2.90 | 3.04 | 3.03 | 2.76 |

Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs and PCI write-offs (6)
Capital ratios at period end ${ }^{(10)}$
Risk-based capital:

| Common equity tier 1 capital | 11.6 | $\%$ | 11.0 | $\%$ | 11.0 | $\%$ | 11.0 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 10.6 | $\%$ |  |  |  |  |  |  |  |
| Tier 1 capital | 13.2 | 12.5 |  | 12.4 | 12.4 | 12.0 |  |  |
| Total capital | 15.1 |  | 14.4 |  | 14.3 | 14.2 | 13.9 |  |
| Tier 1 leverage | 8.9 | 8.8 | 8.9 | 9.1 | 8.9 |  |  |  |
| Tangible equity ${ }^{(2)}$ | 9.2 | 9.1 | 9.2 | 9.4 | 9.3 |  |  |  |
| Tangible common equity ${ }^{(2)}$ | 8.0 | 7.9 | 8.1 | 8.2 | 8.1 |  |  |  |
| For footnotes see page 7. |  |  |  |  |  |  |  |  |

Table 7 Selected Year-to-Date Financial Data


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Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management -
Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 47 and corresponding Table 33, and Commercial Portfolio Credit Risk Management - Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 52 and corresponding Table 40.
Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
Net charge-offs exclude $\$ 88$ million and $\$ 187$ million of write-offs in the PCI loan portfolio for the six months
${ }^{(6)}$ ended June 30, 2017 and 2016. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.

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Selected Year-to-Date
Table 7 Financial Data
(continued)
Six Months Ended June
30
(Dollars
in 20172016
millions)
Average
balance
sheet
Total
loans
and
leases
Total
assets
$2,250,391 \quad 2,181,082$
Total
$\begin{array}{ll}\text { Total } \\ \text { deposits } & 1,256,735 \\ \text { 1,205,873 }\end{array}$
Long-term22,751 233,358
debt
\$914,432 \$896,327

Common
shareholdens,452 238,803
equity
Total
shareholdefy,672 262,889
equity
Asset
quality (2)
Allowance
for
$\begin{array}{ll}\text { credit }\end{array} \$ 11,632 \quad \$ 12,587$
losses ${ }^{(3)}$
Nonperforming
loans,
$\begin{array}{lll}\begin{array}{l}\text { leases } \\ \text { and }\end{array} & 7,127 & 8,799\end{array}$
foreclosed
properties (4)
Allowande20 \% 1.32 \%
for loan
and
lease
losses as
a
percentage
of total
loans
and
leases
outstanding ${ }^{(4)}$
Allowance
for loan
and
lease
losses as
a
percentage ${ }^{160}$
of total
nonperforming
loans
and
leases (4)
Allowance
for loan
and
lease
losses as
a
percentage
of total 154
nonperforming
loans
and
leases,
excluding
the PCI
loan
portfolio ${ }^{(4)}$
Amounts
included
in
allowance
for loan
and
lease
losses
$\begin{aligned} & \text { for loans } \\ & \text { and }\end{aligned} \$ 3,782 \quad \$ 4,087$
and
leases
that are
excluded
from
nonperforming
loans
and
leases ${ }^{(5)}$
AllowandĐ4 \% 93 \%
for loan
and
lease
losses as
a
percentage
of total
nonperforming
loans
and
leases,
excluding
the
allowance
for loan
and
lease
losses
for loans
and
leases
that are
excluded
from
nonperforming
loans
and
leases ${ }^{(4,}$
5)

Net
charge-o\$f,842 \$2,053
(6)

Annualized
net
charge-offs
as a
percentage
of $0.41 \quad \% \quad 0.46 \quad \%$
loans
and
leases
outstanding
$(4,6)$
Annualized42 0.47
net
charge-offs
as a
percentage
of
average
loans
and
leases
outstanding,
excluding
the PCI
loan
portfolio
(4)

Annualized
net
charge-offs and PCI
write-offs
as a
percentage $0.43 \quad 0.51$
of
average
loans
and
leases
outstanding
(4)

Nonperforming
loans
and
leases as
a
percentage75 0.94
of total
loans
and
leases
outstanding ${ }^{(4)}$
Nonperforming
loans,
leases
and
foreclosed
properties
as a $\quad 0.78$
percentage
of total
loans,
leases
and
foreclosed
properties ${ }^{(4)}$
Ratio of $2.99 \quad 2.99$
the
allowance
for loan
and
lease
losses at
period
end to
annualized
net
charge-offs
(6)

Ratio of
the
allowance
for loan
and
lease
losses at
$\begin{array}{ll}\text { period } \\ \text { end to } & 2.88 \\ 2.85\end{array}$
end to
annualized
net
charge-offs,
excluding
the PCI
loan
portfolio
Ratio of
the
allowance
for loan
and
lease
losses at
period $2.82 \quad 2.76$
period
end to
annualized
net
charge-offs
and PCI
write-offs
For footnotes see page 9 .

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

## Supplemental Financial Data

In this Form 10-Q, we present certain non-GAAP financial measures. Non-GAAP financial measures exclude certain items or otherwise include components that differ from the most directly comparable measures calculated in accordance with GAAP. Non-GAAP financial measures are provided as additional useful information to assess our financial condition, results of operations (including period-to-period operating performance) or compliance with prospective regulatory requirements. These non-GAAP financial measures are not intended as a substitute for GAAP financial measures and may not be defined or calculated the same way as non-GAAP financial measures used by other companies.
We view net interest income and related ratios and analyses on an fully taxable-equivalent (FTE) basis, which when presented on a consolidated basis, are non-GAAP financial measures. To derive the FTE basis, net interest income is adjusted to reflect tax-exempt income on an equivalent before-tax basis with a corresponding increase in income tax expense. For purposes of this calculation, we use the federal statutory tax rate of 35 percent and a representative state tax rate. In addition, certain performance measures including the efficiency ratio and net interest yield utilize net interest income (and thus total revenue) on an FTE basis. The efficiency ratio measures the costs expended to generate a dollar of revenue, and net interest yield measures the bps we earn over the cost of funds. We believe that presentation of these items on an FTE basis allows for comparison of amounts from both taxable and tax-exempt sources and is consistent with industry practices.
We may present certain key performance indicators and ratios excluding certain items (e.g., debit valuation adjustment (DVA)) which result in non-GAAP financial measures. We believe that the presentation of measures that exclude these items are useful because they provide additional information to assess the underlying operational performance and trends of our businesses and to allow better comparison of period-to-period operating performance.

We also evaluate our business based on certain ratios that utilize tangible equity, a non-GAAP financial measure. Tangible equity represents an adjusted shareholders' equity or common shareholders' equity amount which has been reduced by goodwill and certain acquired intangible assets (excluding mortgage servicing rights (MSRs)), net of related deferred tax liabilities. These measures are used to evaluate our use of equity. In addition, profitability, relationship and investment models use both return on average tangible common shareholders' equity and return on average tangible shareholders' equity as key measures to support our overall growth goals. These ratios are as follows: Return on average tangible common shareholders' equity measures our earnings contribution as a percentage of adjusted common shareholders' equity. The tangible common equity ratio represents adjusted ending common shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.
Return on average tangible shareholders' equity measures our earnings contribution as a percentage of adjusted average total shareholders' equity. The tangible equity ratio represents adjusted ending shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.
Tangible book value per common share represents adjusted ending common shareholders' equity divided by ending common shares outstanding.
We believe that the use of ratios that utilize tangible equity provides additional useful information because they present measures of those assets that can generate income. Tangible book value per share provides additional useful information about the level of tangible assets in relation to outstanding shares of common stock.
The aforementioned supplemental data and performance measures are presented in Tables 6 and 7. Table 8 presents certain non-GAAP financial measures and performance measurements on an FTE basis.

Table 8 Supplemental Financial Data

|  | Three Months Ended |  | Six Months Ended |  |
| :--- | :--- | :--- | :--- | :--- |
| June 30 |  | June 30 |  |  |

Fully taxable-equivalent basis data

| Net interest income | $\$ 11,223$ | $\$ 10,341$ | $\$ 22,478$ | $\$ 21,041$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Total revenue, net of interest expense 23,066 | 21,509 | 45,511 | 42,514 |  |  |
| Net interest yield | 2.34 | $\%$ | 2.23 | $\%$ | 2.37 |
| Efficiency ratio | 59.51 |  | 62.73 |  | 62.78 |
|  |  |  |  | 66.59 | $\%$ |

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Table 9 Quarterly Average Balances and Interest Rates - FTE Basis
Second Quarter 2017 Second Quarter 2016

Earning
assets
Interest-bearing
deposits
with the
Federal
Reserve,
non-U.S.\$ 129,201 \$261 0.81\% \$135,312 \$157 0.47 \%
central
banks
and
other
banks
Time
deposits
placed
$\begin{array}{lllllll}\text { and } & 11,448 & 58 & 2.03 & 7,855 & 35 & 1.79\end{array}$
other
short-term
investments
Federal
funds
sold and
securities
$\begin{array}{llllll}\text { borrowed }_{226,700} & 560 & 0.99 & 223,005 & 260 & 0.47\end{array}$
or
purchased
under
agreements
to resell
Trading

| account 135,931 | 1,199 | 3.54 | 127,189 | 1,109 | 3.50 |
| :--- | :--- | :--- | :--- | :--- | :--- |

assets
Debt
$\begin{array}{llllll}\text { securitiest31,132 } & 2,632 & 2.44 & 419,085 & 2,284 & 2.20\end{array}$
(1)

Loans
and
leases (2):
$\begin{array}{llllll}\begin{array}{llll}\text { Residential } \\ \text { mortgage }\end{array} & 1,697 & 3.46 & 186,752 & 1,626 & 3.48\end{array}$

| Home | 63,332 | 664 | 4.20 | 73,141 | 703 | 3.86 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

U.S.
$\begin{array}{lllllll}\text { credit } & 89,464 & 2,128 & 9.54 & 86,705 & 1,983 & 9.20\end{array}$
card
Non-U.S.

| credit | 6,494 | 147 | 9.08 | 9,988 | 250 | 10.06 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

card ${ }^{(1)}$
$\begin{array}{llllll}\left.\begin{array}{l}\text { Direct/Indirect } \\ \text { consumer }\end{array}{ }^{(3)}\right)^{46}\end{array} \quad 643 \quad 2.77 \quad 91,643 \quad 563 ~ 2.47$
Other

| 2.6 | 26 | 4.07 |  |  | 3.00 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2,62 | 26 | 4.07 | 2,220 | 16 | 3.00 |


| Total <br> consumer | 451,000 | 5,305 | 4.71 | 450,449 | 5,141 | 4.58 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$\begin{array}{llllll}\text { U.S. } & 292 \\ \text { commercial } & \text { 291,162 } & 2,403 & 3.31 & 276,640 & 2,006\end{array} 2.92$
Commercial
$\begin{array}{lllllll}\text { real } & 58,198 & 514 & 3.54 & 57,772 & 434 & 3.02\end{array}$
estate ${ }^{(5)}$
Commercial
$\begin{array}{lllllll}\text { lease } & 21,649 & 156 & 2.89 & 20,874 & 147 & 2.81\end{array}$
financing
$\begin{array}{llllll}\text { Non-U.S } \\ 92,708 & 615 & 2.66 & 93,935 & 564 & 2.42\end{array}$
commercial
Total
commercial 463,71
$3,688 \quad 3.19 \quad 449,221 \quad 3,151$
2.82

Total

| loans <br> and | 914,717 | 8,993 | 3.94 | 899,670 | 8,292 | 3.70 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

leases
Other
$\begin{array}{llllll}\text { earning } & 73,618 & 680 & 3.70 & 55,957 & 660 \\ 4.74\end{array}$
assets
Total
earning $1,922,747 \quad 14,383 \quad 3.00 \quad 1,868,073 \quad 12,797 \quad 2.75$
assets ${ }^{(6)}$
Cash
and due
from
27,659
27,924
banks ${ }^{(1)}$
Other
assets,
less
allowance
for loan 318,747
292,244
and
lease
losses (1)
Total
assets $\$ 2,269,153$
\$2,188,241
Interest-bearing
liabilities

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U.S.
interest-bearing deposits:
Savings $\$ 54,494 \quad \$ 2 \quad 0.01 \% ~ \$ 50,105 \quad \$ 1 \quad 0.01 \%$
NOW
and
$\begin{array}{lllllll}\text { money } \\ \text { market }\end{array} 619,593 \quad 105 \quad 0.07 \quad 583,913 \quad 72 \quad 0.05$
deposit
accounts
Consumer
$\begin{array}{llllll}\text { CDs and45,682 } & 30 & 0.27 & 48,450 & 33 & 0.28\end{array}$
IRAs
Negotiable
CDs,
public
$\begin{array}{lllllll}\text { funds } & 36,041 & 68 & 0.75 & 32,879 & 35 & 0.42\end{array}$
and
other
deposits
Total
U.S. $\begin{array}{llllll}\text { interest-bearing } & 205 & 0.11 & 715,347 & 141 & 0.08\end{array}$ deposits
Non-U.S.
interest-bearing
deposits:
Banks
located
$\begin{array}{lllllll}\text { in } & 3,058 & 6 & 0.77 & 4,235 & 10 & 0.98\end{array}$
non-U.S.
countries
Governments

| and |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| official | 981 | 2 | 0.90 | 1,542 | 2 | 0.66 |

institutions
Time,
$\begin{array}{lllllll}\text { savings } & 60,047 & 133 & 0.89 & 60,311 & 92 & 0.61\end{array}$
other
Total

| non-U.S. | .64,086 | 141 | 0.89 | 66,088 | 104 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| inter $^{2}$ | 0.63 |  |  |  |  |

interest-bearing
deposits
Total

| interest-b\&h9i896 | 346 | 0.17 | 781,435 | 245 | 0.13 |
| :--- | :--- | :--- | :--- | :--- | :--- |

deposits
$\begin{array}{llllll}\text { Federal } 251,641 & 917 & 1.46 & 215,852 & 626 & 1.17\end{array}$
funds
purchased,
securities
loaned
or sold
under
agreements
to
repurchase
and
short-term
borrowings
Trading

| account 45,156 | 307 | 2.73 | 36,652 | 242 | 2.66 |
| :--- | :--- | :--- | :--- | :--- | :--- |

liabilities
$\begin{array}{llllll}\text { Long-term } 224,019 & 1,590 & 2.84 & 233,061 & 1,343 & 2.31\end{array}$
Total
$\begin{array}{llllll}\text { interest-bl,a4Ag12 } & 3,160 & 0.94 & 1,267,000 & 2,456 & 0.78\end{array}$
liabilities ${ }^{(6)}$
Noninterest-bearing
sources:
Noninterest-bearing
deposits 436,942 $\quad 431,856$
Other
liabilities ${ }^{220,276}$
Shareholders'
equity
Total
liabilities
and $\$ 2,269,153$
\$2,188,241
shareholders'
equity
Net
interest $\quad 2.06 \% \quad 1.97 \%$
spread
Impact
of
noninterest-bearing
0.28
0.26
sources
Net
interest
income/yield \$11,223 2.34\% \$10,341 $2.23 \%$
on
\$11,223 2.34\% \$10,341 $2.23 \%$
earning
assets
Includes assets of the Corporation's non-U.S. consumer credit card business, which were previously included in
${ }^{(1)}$ assets of business held for sale on the Consolidated Balance Sheet. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is
${ }^{(2)}$ generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
${ }^{(3)}$ Includes non-U.S. consumer loans of $\$ 2.9$ billion and $\$ 3.4$ billion in the second quarter of 2017 and 2016.
(4)

Includes consumer finance loans of $\$ 431$ million and $\$ 526$ million; consumer leases of $\$ 2.0$ billion and $\$ 1.5$ billion, and consumer overdrafts of $\$ 167$ million and $\$ 166$ million in the second quarter of 2017 and 2016, respectively.
Includes U.S. commercial real estate loans of $\$ 55.0$ billion and $\$ 54.3$ billion, and non-U.S. commercial real estate loans of $\$ 3.2$ billion and $\$ 3.5$ billion in the second quarter of 2017 and 2016, respectively.
Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $\$ 24$ million and $\$ 56$ million in the second quarter of 2017 and 2016. Interest expense
${ }^{(6)}$ includes the impact of interest rate risk management contracts, which decreased interest expense on the underlying liabilities by $\$ 326$ million and $\$ 610$ million in the second quarter of 2017 and 2016. For additional information, see Interest Rate Risk Management for the Banking Book on page 63.

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Table ${ }^{10} \begin{aligned} & \text { Year-to-Date Average Balances and Interest Rates - FTE } \\ & \text { Basis }\end{aligned}$
Six Months Ended June 30
20172016
$\begin{array}{llllll}\text { (Dollars } & \text { Average } & \text { Interest } & \text { Yield/ Average } & \text { Interest } & \text { Yield/ } \\ \text { in } & \text { Income/ } & \text { Aveme } & \text { Rate } & \text { Balance } & \text { Expense }\end{array}$
Earning
assets
Interest-bearing
deposits
with the
Federal
$\begin{array}{llllll}\begin{array}{l}\text { Reserve, } \\ \text { non-U.S. }\end{array} & \$ 126,576 & \$ 463 & 0.74 \% & \$ 136,943 & \$ 312\end{array} 0.46 \%$
central
banks and
other
banks
Time
deposits
$\begin{array}{lllllll}\begin{array}{l}\text { placed } \\ \text { and other }\end{array} & 11,472 & 105 & 1.84 & 8,506 & 67 & 1.59\end{array}$
short-term
investments
Federal
funds
sold and
securities
$\begin{array}{llllll}\text { borrowed } 221,579 & 999 & 0.91 & 216,094 & 536 & 0.50\end{array}$
or
purchased
under
agreements
to resell
Trading

| account | 130,824 | 2,310 | 3.56 | 131,748 | 2,321 | 3.54 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

assets
Debt
securities 430,685 $\begin{array}{lllll}\text { 5,205 } & 2.41 & 409,531 & 4,821 & 2.38\end{array}$
Loans
and
leases ${ }^{(2)}$ :

| Residential <br> mortgage | 194,787 | 3,358 | 3.45 | 186,866 | 3,255 |
| :--- | :--- | :--- | :--- | :--- | :--- | 3.48


| Home | 64,414 | 1,303 | 4.07 | 74,235 | 1,414 | 3.82 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| equity | 69,545 | 4,239 | 9.55 | 86,934 | 4,004 | 9.26 |

U.S.
credit
card
Non-U.S.
$\begin{array}{lllllll}\text { credit } & 7,923 & 358 & 9.12 & 9,905 & 503 & 10.21\end{array}$
card ${ }^{(1)}$

Other

consumer | $\left.{ }^{2}\right)^{5} 589$ | 53 | 4.07 | 2,178 |
| :--- | :--- | :--- | :--- |


$\begin{array}{llllll}\text { U.S. } & 289,325 & 4,625 & 3.22 & 273,576 & 3,942 \\ 2.90\end{array}$
Commercial
$\begin{array}{lllllll}\text { real } & 57,982 & 993 & 3.45 & 57,521 & 868 & 3.03\end{array}$
estate ${ }^{(5)}$
Commercial
$\begin{array}{lllllll}\text { lease } & 21,885 & 387 & 3.54 & 20,975 & 329 & 3.14\end{array}$
financing
$\begin{array}{llllll}\text { Non-U.S. } \\ \text { commercial, } & \text {, } & 164 & 1,210 & 2.63 & 93,644 \\ 1,149 & 2.47\end{array}$
Total
commercia $\mathrm{ial}^{461}$

7,215 3.15
445,716 6,288
2.84

Total
$\begin{array}{llllll}\text { loans and 914,432 } & 17,777 & 3.91 & 896,327 & 16,609 & 3.72\end{array}$
leases
Other

| earning | 73,568 | 1,431 | 3.92 | 57,298 | 1,354 | 4.75 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

assets
Total
$\begin{array}{lllllll}\text { earning } & 1,909,136 & 28,290 & 2.98 & 1,856,447 & 26,020 & 2.81\end{array}$
assets ${ }^{(6)}$
Cash and
due from 27,429 28,384
banks ${ }^{(1)}$
Other
assets,
less
allowance313,826
296,251
for loan
and lease
losses (1)
Total
assets \$2,250,391
\$2,181,082
Interest-bearing
liabilities
U.S.
interest-bearing
deposits:
Savings $\$ 53,350 \quad \$ 3 \quad 0.01 \%$ \$48,975 $\$ 2 \quad 0.01 \%$

NOW
and
$\begin{array}{lllllll}\begin{array}{l}\text { money } \\ \text { market }\end{array} & 618,676 & 179 & 0.06 & 580,846 & 143 & 0.05\end{array}$
deposit
accounts
Consumer
$\begin{array}{lllllll}\text { CDs and } & 46,194 & 61 & 0.27 & 49,034 & 68 & 0.28\end{array}$
IRAs
Negotiable
CDs,

| public |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| funds and | 34,$874 \quad 120 \quad 0.69 \quad 32,308 ~ 64 ~ 0.40$

other
deposits
Total
$\begin{array}{lllllll}\text { U.S. } & \text { 753,094 } & 363 & 0.10 & 711,163 & 277 & 0.08\end{array}$
interest-bearing
deposits
Non-U.S.
interest-bearing
deposits:
Banks
located in
non-U S. 2,838 $\quad 11 \quad 0.764^{4,179} \quad 19 \quad 0.91$
non-U.S.
countries
Governments
and
official $\begin{array}{llllll}997 & 4 & 0.85 & 1,507 & 4 & 0.60\end{array}$
institutions
Time,
$\begin{array}{lllllll}\text { savings } & 59,237 & 250 & 0.85 & 58,627 & 170 & 0.58\end{array}$
and other
Total
$\begin{array}{llllll}\text { non-U.S. } 63.072 & 265 & 0.85 & 64,313 & 193 & 0.60\end{array}$
interest-bearing
deposits
Total
$\begin{array}{llllll}\text { interest-be817 }{ }^{2} \mathrm{~g} 66 & 628 & 0.16 & 775,476 & 470 & 0.12\end{array}$
deposits
$\begin{array}{lllllll}\text { Federal } & 241,733 & 1,564 & 1.30 & 218,921 & 1,239 & 1.14\end{array}$
funds
purchased,
securities
loaned or
sold
under
agreements
to
repurchase
and
short-term
borrowings
Trading

| account | 41,962 | 571 | 2.74 | 38,027 | 534 | 2.83 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

es
Long-term
debt 222,751 $\quad 3,049 \quad 2.75 \quad 233,358 \quad 2,736 \quad 2.35$

Total
interest-beh, 2ag,612 5,812 $0.88 \quad 1,265,782 \quad 4,979 \quad 0.79$
liabilities ${ }^{(6)}$
Noninterest-bearing
sources:
$\begin{aligned} & \begin{array}{l}\text { Noninterest-bearing } \\ \text { deposits }\end{array} 40,569\end{aligned} \quad 430,397$
Other
liabilities 217,538
222,014
Shareholders’,672
equity
Total
liabilities
and \$2,250,391
\$2,181,082
shareholders'
equity
Net
interest
$2.10 \%$
$2.02 \%$
spread
Impact of
noninterest-bearing
0.27
0.26
sources
Net
interest
income/yield
on
\$22,478 $2.37 \% \quad \$ 21,0412.28 \%$
earning
assets
Includes assets of the Corporation's non-U.S. consumer credit card business, which were previously included in
${ }^{(1)}$ assets of business held for sale on the Consolidated Balance Sheet. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is
${ }^{(2)}$ generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
(3) Includes non-U.S. consumer loans of $\$ 2.9$ billion and $\$ 3.6$ billion for the six months ended June 30, 2017 and 2016.

Includes consumer finance loans of $\$ 442$ million and $\$ 538$ million; consumer leases of $\$ 2.0$ billion and $\$ 1.5$
${ }^{(4)}$ billion, and consumer overdrafts of $\$ 168$ million and $\$ 163$ million for the six months ended June 30, 2017 and 2016, respectively.
(5) Includes U.S. commercial real estate loans of $\$ 54.8$ billion and $\$ 54.1$ billion, and non-U.S. commercial real estate loans of $\$ 3.2$ billion and $\$ 3.5$ billion for the six months ended June 30, 2017 and 2016, respectively.
${ }^{(6)}$ Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $\$ 41$ million and $\$ 91$ million for the six months ended June 30, 2017 and 2016. Interest expense includes the impact of interest rate risk management contracts, which decreased interest expense on the
underlying liabilities by $\$ 750$ million and $\$ 1.2$ billion for the six months ended June 30, 2017 and 2016. For additional information, see Interest Rate Risk Management for the Banking Book on page 63.

## Business Segment Operations

Segment Description and Basis of Presentation
We report our results of operations through the following four business segments: Consumer Banking, GWIM, Global Banking and Global Markets, with the remaining operations recorded in All Other. We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. We utilize a methodology that considers the effect of regulatory capital requirements in addition to internal risk-
based capital models. Our internal risk-based capital models use a risk-adjusted methodology incorporating each segment's credit, market, interest rate, business and operational risk components. For more information on the nature of these risks, see Managing Risk on page 28. For more information on the basis of presentation for business segments and reconciliations to consolidated total revenue, net income and period-end total assets, see Note 17 - Business Segment Information to the Consolidated Financial Statements.

Consumer Banking
Three Months Ended June 30

|  | Deposits |  | Consumer <br> Lending |  | Total Consumer <br> Banking |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | \% |  |
| Net interest income (FTE basis) | \$3,302 | \$2,618 | \$2,658 | \$2,589 | \$5,960 | \$5,207 | 14 | \% |
| Noninterest income: |  |  |  |  |  |  |  |  |
| Card income | 2 | 2 | 1,247 | 1,214 | 1,249 | 1,216 | 3 |  |
| Service charges | 1,061 | 1,011 | 1 | - | 1,062 | 1,011 | 5 |  |
| Mortgage banking income ${ }^{(1)}$ | - | - | 140 | 267 | 140 | 267 | (48 | ) |
| All other income (loss) | 93 | 99 | 4 | (5 | ) 97 | 94 | 3 |  |
| Total noninterest income | 1,156 | 1,112 | 1,392 | 1,476 | 2,548 | 2,588 | (2 | ) |
| Total revenue, net of interest expense (FTE basis) | 4,458 | 3,730 | 4,050 | 4,065 | 8,508 | 7,795 | 9 |  |
| Provision for credit losses | 45 | 41 | 789 | 685 | 834 | 726 | 15 |  |
| Noninterest expense | 2,558 | 2,380 | 1,851 | 2,038 | 4,409 | 4,418 | <1 |  |
| Income before income taxes (FTE basis) | 1,855 | 1,309 | 1,410 | 1,342 | 3,265 | 2,651 | 23 |  |
| Income tax expense (FTE | 700 | 482 | 533 | 495 | 1,233 | 977 | 26 |  |

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basis)
$\begin{array}{llllllll}\text { Net income } & \$ 1,155 & \$ 827 & \$ 877 & \$ 847 & \$ 2,032 & \$ 1,674 & 21\end{array}$
Net interest
yield (FTE 2.03 \% 1.77 \% $4.15 \quad \% 4.34 \quad \% 3.48 \quad \% 3.34 \quad \%$
basis)
Return on average allocated capital Efficiency $\begin{array}{lllllll}\text { ratio (FTE } & 57.38 & 63.77 & 45.72 & 50.16 & 51.83 & 56.67\end{array}$ basis)

Balance Sheet
Three Months Ended June 30

| Average | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | $\%$ Change |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Total loans and <br> leases | $\$ 5,016$ | $\$ 4,792$ | $\$ 256,521$ | $\$ 238,129$ | $\$ 261,537$ | $\$ 242,921$ | 8 | $\%$ |
| Total earning <br> assets $^{(2)}$ | 651,677 | 594,748 | 257,130 | 239,645 | 686,064 | 627,225 | 9 |  |
| Total assets${ }^{(2)}$ | 678,816 | 621,445 | 268,680 | 250,819 | 724,753 | 665,096 | 9 |  |
| Total deposits | 646,474 | 589,294 | 6,313 | 7,177 | 652,787 | 596,471 | 9 |  |
| Allocated <br> capital | 12,000 | 12,000 | 25,000 | 22,000 | 37,000 | 34,000 | 9 |  | Total consolidated mortgage banking income of $\$ 230$ million and $\$ 352$ million for the three and six months ended ${ }^{(1)}$ June 30, 2017 was recorded primarily in Consumer Lending and All Other, compared to $\$ 312$ million and $\$ 745$ million for the same periods in 2016.

In segments and businesses where the total of liabilities and equity exceeds assets, we allocate assets from All
${ }^{(2)}$ Other to match the segments' and businesses' liabilities and allocated shareholders' equity. As a result, total earning assets and total assets of the businesses may not equal total Consumer Banking.

[^1]Six Months Ended June 30

| Deposits | Consumer <br> Lending |
| :--- | :--- |


| (Dollars in millions) | 2017 | 2016 |  | 2017 | 2016 |  | 2017 | 2016 |  | \% Change |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net interest income (FTE basis) | \$6,365 | \$ 5,310 |  | \$5,376 | \$ 5,225 |  | \$11,741 | \$ 10,535 |  | 11 \% |
| Noninterest income: |  |  |  |  |  |  |  |  |  |  |
| Card income | 4 | 5 |  | 2,469 | 2,422 |  | 2,473 | 2,427 |  | 2 |
| Service charges | 2,111 | 2,008 |  | 1 | - |  | 2,112 | 2,008 |  | 5 |
| Mortgage banking income ${ }^{(1)}$ | - | - |  | 259 | 457 |  | 259 | 457 |  | (43 ) |
| All other income | 195 | 214 |  | 12 | 11 |  | 207 | 225 |  | (8 ) |
| Total noninterest income | 2,310 | 2,227 |  | 2,741 | 2,890 |  | 5,051 | 5,117 |  | (1 ) |
| Total revenue, net of interest expense (FTE basis) | 8,675 | 7,537 |  | 8,117 | 8,115 |  | 16,792 | 15,652 |  | 7 |
| Provision for credit losses | 100 | 89 |  | 1,572 | 1,168 |  | 1,672 | 1,257 |  | 33 |
| Noninterest expense | 5,084 | 4,837 |  | 3,734 | 4,122 |  | 8,818 | 8,959 |  | $(2)$ |
| Income before income taxes (FTE basis) | 3,491 | 2,611 |  | 2,811 | 2,825 |  | 6,302 | 5,436 |  | 16 |
| Income tax expense (FTE basis) | 1,317 | 961 |  | 1,061 | 1,039 |  | 2,378 | 2,000 |  | 19 |
| Net income | \$2,174 | \$ 1,650 |  | \$ 1,750 | \$ 1,786 |  | \$3,924 | \$ 3,436 |  | 14 |
| Net interest yield (FTE basis) | 2.00 | \% 1.82 | \% | 4.24 | \%4.43 | \% | 3.49 | \%3.43 | \% |  |
| Return on average allocated capital | 37 | 28 |  | 14 | 16 |  | 21 | 20 |  |  |
| Efficiency <br> ratio (FTE <br> basis) | 58.62 | 64.18 |  | 46.00 | 50.79 |  | 52.52 | 57.24 |  |  |

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Balance Sheet

|  | Six Mon | Ended June |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Average | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | \% Change |  |
| Total loans and leases | \$4,998 | \$ 4,761 | \$254,753 | \$ 235,653 | \$259,751 | \$ 240,414 | 8 | \% |
| Total earning assets (2) | 643,237 | 585,691 | 255,607 | 237,003 | 677,512 | 617,263 | 10 |  |
| Total assets ${ }^{(2)}$ | 670,340 | 612,437 | 267,239 | 248,800 | 716,247 | 655,806 | 9 |  |
| Total deposits | 637,953 | 580,378 | 6,285 | 6,954 | 644,238 | 587,332 | 10 |  |
| Allocated capital | 12,000 | 12,000 | 25,000 | 22,000 | 37,000 | 34,000 | 9 |  |
| Period end | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | \% Change |  |
| Total loans and leases | \$5,039 | \$ 4,938 | \$260,899 | \$ 254,053 | \$265,938 | \$ 258,991 | 3 | \% |
| Total earning assets (2) | 661,576 | 631,172 | 261,696 | 255,511 | 696,350 | 662,698 | 5 |  |
| Total assets ${ }^{(2)}$ | 688,800 | 658,316 | 273,298 | 268,002 | 735,176 | 702,333 | 5 |  |
| Total deposits | 656,374 | 625,727 | 6,304 | 7,059 | 662,678 | 632,786 | 5 |  |

See page 14 for footnotes.
Consumer Banking, which is comprised of Deposits and Consumer Lending, offers a diversified range of credit, banking and investment products and services to consumers and small businesses. Our customers and clients have access to a coast to coast network including financial centers in 33 states and the District of Columbia. Our network includes approximately 4,500 financial centers, 16,000 ATMs, nationwide call centers, and online and mobile platforms.
Consumer Banking Results
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for Consumer Banking increased $\$ 358$ million to $\$ 2.0$ billion primarily driven by higher net interest income, partially offset by higher provision for credit losses. Net interest income increased $\$ 753$ million to $\$ 6.0$ billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits and pricing discipline. Noninterest income decreased $\$ 40$ million to $\$ 2.5$ billion primarily driven by lower mortgage banking income, partially offset by higher service charges and card income.
The provision for credit losses increased $\$ 108$ million to $\$ 834$ million due to portfolio seasoning and loan growth in the U.S. credit
card portfolio. Noninterest expense of $\$ 4.4$ billion remained relatively unchanged.

The return on average allocated capital was 22 percent, up from 20 percent, as higher net income was partially offset by an increased capital allocation. For more information on capital allocations, see Business Segment Operations on page 14.
Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
Net income for Consumer Banking increased $\$ 488$ million to $\$ 3.9$ billion primarily driven by higher net interest income and lower noninterest expense, partially offset by higher provision for credit losses. Net interest income increased $\$ 1.2$ billion to $\$ 11.7$ billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits and pricing discipline. Noninterest income decreased $\$ 66$ million to $\$ 5.1$ billion driven by the same factors as described in the three-month discussion.
The provision for credit losses increased $\$ 415$ million to $\$ 1.7$ billion due to portfolio seasoning and loan growth in the U.S. credit card portfolio. Noninterest expense decreased $\$ 141$ million to $\$ 8.8$ billion driven by improved operating efficiencies, partially offset by higher FDIC expense.
The return on average allocated capital was 21 percent, up from 20 percent, as higher net income was partially offset by an increased capital allocation. For more information on capital allocations, see Business Segment Operations on

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page 14.
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## Deposits

Deposits includes the results of consumer deposit activities which consist of a comprehensive range of products provided to consumers and small businesses. Our deposit products include traditional savings accounts, money market savings accounts, CDs and IRAs, noninterest- and interest-bearing checking accounts, as well as investment accounts and products. Net interest income is allocated to the deposit products using our funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. Deposits generates fees such as account service fees, non-sufficient funds fees, overdraft charges and ATM fees, as well as investment and brokerage fees from Merrill Edge accounts. Merrill Edge is an integrated investing and banking service targeted at customers with less than $\$ 250,000$ in investable assets. Merrill Edge provides investment advice and guidance, client brokerage asset services, a self-directed online investing platform and key banking capabilities including access to the Corporation's network of financial centers and ATMs.
Deposits includes the net impact of migrating customers and their related deposit and brokerage asset balances between Deposits and GWIM as well as other client-managed businesses. For more information on the migration of customer balances to or from GWIM, see GWIM - Net Migration Summary on page 20.
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for Deposits increased $\$ 328$ million to $\$ 1.2$ billion driven by higher revenue, partially offset by higher noninterest expense. Net interest income increased $\$ 684$ million to $\$ 3.3$
billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits and pricing discipline. Noninterest income increased $\$ 44$ million to $\$ 1.2$ billion primarily due to higher service charges. The provision for credit losses increased $\$ 4$ million to $\$ 45$ million. Noninterest expense increased $\$ 178$ million to $\$ 2.6$ billion primarily driven by investments in initiatives such as financial center renovations and builds, higher FDIC expense and increased personnel expense from higher levels of primary sales professionals.
Average deposits increased $\$ 57.2$ billion to $\$ 646.5$ billion driven by strong organic growth. Growth in checking, traditional savings and money market savings of $\$ 60.3$ billion was partially offset by a decline in time deposits of $\$ 3.2$ billion.
Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
Net income for Deposits increased $\$ 524$ million to $\$ 2.2$ billion. Net interest income increased $\$ 1.1$ billion to $\$ 6.4$ billion and noninterest income increased $\$ 83$ million to $\$ 2.3$ billion, both of which were primarily driven by the same factors as described in the three-month discussion. The prior-year period also included gains on certain divestitures. The provision for credit losses increased $\$ 11$ million to $\$ 100$ million. Noninterest expense increased $\$ 247$ million to $\$ 5.1$ billion primarily driven by the same factors as described in the three-month discussion.
Average deposits increased $\$ 57.6$ billion to $\$ 638.0$ billion primarily driven by the same factor as described in the three-month discussion.

Key Statistics - Deposits

(2) Digital users represents mobile and/or online users across consumer businesses; historical information has been reclassified primarily due to the sale of the Corporation's non-U.S. consumer credit card business.
Client brokerage assets increased $\$ 27.4$ billion driven by strong client flows and market performance. Mobile banking active users increased 3 million reflecting continuing changes in our customers' banking preferences. The number of financial centers
declined 139 driven by changes in customer preferences to self-service options as we continue to optimize our consumer banking network and improve our cost-to-serve.
Consumer Lending
Consumer Lending offers products to consumers and small businesses across the U.S. The products offered include credit and debit cards, residential mortgages and home equity loans, and direct and indirect loans such as automotive, recreational vehicle and consumer personal loans. In addition to earning net interest spread revenue on its lending activities, Consumer Lending generates interchange revenue from credit and debit card transactions, late fees, cash advance fees, annual credit card fees,
mortgage banking fee income and other miscellaneous fees. Consumer Lending products are available to our customers through our retail network, direct telephone, and online and mobile channels. Consumer Lending results also include the impact of servicing residential mortgages and home equity loans in the core portfolio, including loans held on the balance sheet of Consumer Lending and loans serviced for others.
We classify consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, loan-to-value (LTV), Fair Isaac Corporation (FICO) score and delinquency status. For more information on the core and non-core portfolios, see Consumer Portfolio Credit Risk Management on page 39. At June 30, 2017, total owned loans in the core portfolio held in Consumer Lending were $\$ 108.2$ billion, an increase of $\$ 12.8$ billion from June 30, 2016, primarily driven

[^2]by higher residential mortgage balances, partially offset by a decline in home equity balances.
Consumer Lending includes the net impact of migrating customers and their related loan balances between Consumer Lending and GWIM. For more information on the migration of customer balances to or from GWIM, see GWIM - Net Migration Summary on page 20.
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for Consumer Lending increased $\$ 30$ million to $\$ 877$ million driven by lower noninterest expense and higher net interest income, partially offset by higher provision for credit losses and lower noninterest income. Net interest income increased $\$ 69$ million to $\$ 2.7$ billion primarily driven by the impact of an increase in loan balances. Noninterest income decreased $\$ 84$ million to $\$ 1.4$ billion driven by lower mortgage banking income, partially offset by higher card income.
The provision for credit losses increased $\$ 104$ million to $\$ 789$ million due to portfolio seasoning and loan growth in the U.S. credit card portfolio. Noninterest expense decreased $\$ 187$ million to $\$ 1.9$ billion primarily driven by improved operating efficiencies.

Average loans increased $\$ 18.4$ billion to $\$ 256.5$ billion primarily driven by increases in residential mortgages, as well as consumer vehicle and U.S. credit card loans, partially offset by lower home equity loan balances.
Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
Net income for Consumer Lending decreased $\$ 36$ million to $\$ 1.8$ billion driven by higher provision for credit losses and lower noninterest income, partially offset by lower noninterest expense and higher net interest income. Net interest income increased $\$ 151$ million to $\$ 5.4$ billion. Noninterest income decreased $\$ 149$ million to $\$ 2.7$ billion. Fluctuations were driven by the same factors as described in the three-month discussion.
The provision for credit losses increased $\$ 404$ million to $\$ 1.6$ billion due to portfolio seasoning and loan growth in the U.S. credit card portfolio. Noninterest expense decreased $\$ 388$ million to $\$ 3.7$ billion primarily driven by the same factor as described in the three-month discussion.
Average loans increased $\$ 19.1$ billion to $\$ 254.8$ billion driven by the same factors as described in the three-month discussion.

Key Statistics - Consumer Lending

|  | Three Months Ended <br> June 30 |  |  | Six Months Ended June |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | 2017 | 2016 |  | 30 | 2017 | 2016 |

(1) In addition to the U.S. credit card portfolio in Consumer Banking, the remaining U.S. credit card portfolio is in
GWIM. During the three and six months ended June 30, 2017, the total U.S. credit card risk-adjusted margin decreased 39 bps and 27 bps compared to the same periods in 2016, primarily driven by increased net charge-offs and higher credit card rewards costs.
Total U.S. credit card purchase volumes increased $\$ 5.0$ billion to $\$ 61.7$ billion, and $\$ 9.2$ billion to $\$ 117.0$ billion, and debit card purchase volumes increased $\$ 3.2$ billion to $\$ 75.3$ billion, and $\$ 4.7$ billion to $\$ 146.0$ billion, reflecting higher levels of consumer spending.
Mortgage Banking Income
Mortgage banking income in Consumer Banking includes production income and net servicing income. Production income is comprised primarily of revenue from the fair value gains and losses recognized on our interest rate lock commitments (IRLCs) and loans held-for-sale (LHFS), the related secondary market execution, and costs related to

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representations and warranties made in the sales transactions along with other obligations incurred in the sales of mortgage loans. Production income for the three and six months ended June 30, 2017 decreased $\$ 115$ million to $\$ 67$ million, and $\$ 199$ million to $\$ 121$ million compared
to the same periods in 2016 due to a decision to retain a higher percentage of residential mortgage production in Consumer Banking, as well as the impact of a higher interest rate environment driving lower refinances.
Net servicing income within Consumer Banking includes income earned in connection with servicing activities and MSR valuation adjustments for the core portfolio, net of results from risk management activities used to hedge certain market risks of the MSRs. Net servicing income for the three and six months ended June 30, 2017 decreased $\$ 12$ million to $\$ 73$ million, and remained relatively unchanged at $\$ 138$ million compared to the same periods in 2016. Mortgage Servicing Rights
At June 30, 2017, the core MSR portfolio, held within Consumer Lending, was $\$ 1.8$ billion compared to $\$ 1.5$ billion at June 30, 2016. The increase was primarily driven by changes in fair value, partially offset by the amortization of expected cash flows, which exceeded additions to the MSR portfolio. For more information on MSRs, see Note 14 Fair Value Measurements to the Consolidated Financial Statements.

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Key Statistics

| Three Months | Six Months |
| :--- | :--- |
| Ended June 30 | Ended June 30 |
| $2017 \quad 2016$ | 2017 |

(Dollars in millions) 2017201620172016
Loan production ${ }^{(1)}$ :
Total ${ }^{(2)}$ :
First mortgage $\quad \$ 13,251 \$ 16,314 \$ 24,693 \$ 28,937$
Home equity $\quad 4,685 \quad 4,303 \quad 8,738 \quad 8,108$
Consumer Banking:
First mortgage $\quad \$ 9,006$ \$11,541 \$16,635 \$20,619
$\begin{array}{lllll}\text { Home equity } & 4,215 & 3,881 & 7,882 & 7,396\end{array}$
${ }_{(1)}$ The loan production amounts represent the unpaid principal balance of loans and in the case of home equity, the principal amount of the total line of credit.
(2) In addition to loan production in Consumer Banking, there is also first mortgage and home equity loan production in GWIM.
First mortgage loan originations in Consumer Banking and for the total Corporation decreased $\$ 2.5$ billion and $\$ 3.1$ billion in the three months ended June 30,2017 compared to the same period in 2016 primarily driven by a higher interest rate environment driving lower first-lien mortgage refinances. First mortgage loan originations in Consumer Banking and for the total Corporation decreased $\$ 4.0$ billion and $\$ 4.2$ billion in the six months ended June 30, 2017 primarily driven by the same factor as described in the three-month discussion.

Home equity production in Consumer Banking and for the total Corporation increased $\$ 334$ million and $\$ 382$ million for the three months ended June 30, 2017 compared to the same period in 2016 due to a higher demand in the market based on improving housing trends. Home equity production in Consumer Banking and for the total Corporation increased $\$ 486$ million and $\$ 630$ million for the six months ended June 30,2017 primarily driven by the same factor as described in the three-month discussion.
Global Wealth \& Investment Management

basis)

| Provision for <br> credit losses | 11 | 14 | (21 ) | 34 | 39 | (13 ) |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Noninterest <br> expense | 3,392 | 3,285 | 3 | 6,722 | 6,555 | 3 |
| Income before <br> income taxes | 1,292 | 1,126 | 15 | 2,531 | 2,300 | 10 |
| (FTE basis) |  |  |  |  |  |  |
| Income tax <br> expense (FTE | 488 | 421 | 16 | 955 | 853 | 12 |
| basis) |  |  |  |  |  |  |
| Net income | $\$ 804$ | $\$ 705$ | 14 | $\$ 1,576$ | $\$ 1,447$ | 9 |
| Net interest <br> yield (FTE <br> basis) | 2.41 | $\%$ | 2.06 | $\%$ | 2.34 | $\%$ |
| Return on <br> average <br> allocated <br> capital | 23 | 22 |  | 23 | $\%$ |  |
| Efficiency <br> ratio (FTE <br> basis) | 72.24 | 74.23 |  | 72.38 | 73.70 |  |

Balance Sheet

|  | Three Months Ended June 30 |  |  | Six Months Ended June 30 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Average | 2017 | 2016 | \% Change | 2017 | 2016 | \% <br> Change |
| Total loans and leases | \$150,812 | \$141,180 | \% | \$149,615 | \$ 140,139 | 7 \% |
| Total earning assets | 265,845 | 273,873 |  | 271,884 | 276,739 | (2) |
| Total assets | 281,167 | 289,645 | (3) | 287,266 | 292,678 | (2) |
| Total deposits | 245,329 | 254,804 |  | 251,324 | 257,643 | (2) |
| Allocated capital | 14,000 | 13,000 | 8 | 14,000 | 13,000 | 8 |
| Period end |  |  |  | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | \% <br> Change |
| Total loans and leases |  |  |  | \$153,468 | \$ 148,179 | 4 |
| Total earning assets |  |  |  | 258,744 | 283,151 | (9 ) |
| Total assets |  |  |  | 274,746 | 298,931 | (8) |
| Total deposits |  |  |  | 237,131 | 262,530 | (10) |

[^3]GWIM consists of two primary businesses: Merrill Lynch Global Wealth Management (MLGWM) and U.S. Trust, Bank of America Private Wealth Management (U.S. Trust).
MLGWM's advisory business provides a high-touch client experience through a network of financial advisors focused on clients with over $\$ 250,000$ in total investable assets. MLGWM provides tailored solutions to meet our clients' needs through a full set of investment management, brokerage, banking and retirement products.
U.S. Trust, together with MLGWM's Private Banking \& Investments Group, provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for GWIM increased $\$ 99$ million to $\$ 804$ million due to higher revenue, partially offset by an increase in revenue-related expense. The operating margin was 28 percent compared to 25 percent a year ago.
Net interest income increased $\$ 194$ million to $\$ 1.6$ billion driven by the impact of higher short-term rates and growth in loan balances. Noninterest income, which primarily includes investment and brokerage services income, increased $\$ 76$ million to $\$ 3.1$ billion. This increase was driven by higher asset management fees primarily due to higher market valuations and AUM flows, partially offset by lower transactional revenue. Also, the prior-year period included a gain of approximately $\$ 60$ million related to the sale of BofA Global Capital Management's AUM. Noninterest expense increased $\$ 107$ million to $\$ 3.4$ billion
primarily driven by higher revenue-related incentive costs and increased FDIC expense.
The return on average allocated capital was 23 percent, up from 22 percent, as higher net income was partially offset by an increased capital allocation.
MLGWM revenue of $\$ 3.9$ billion increased eight percent due to higher net interest income and asset management fees driven by higher market valuations and AUM flows, partially offset by lower transactional revenue. U.S. Trust revenue of $\$ 819$ million increased seven percent reflecting higher net interest income and asset management fees driven by higher market valuations.
Six Months Ended June 30, 2017 Compared to Six Months Ended June 30, 2016
Net income for GWIM increased $\$ 129$ million to $\$ 1.6$ billion due to higher revenue, partially offset by an increase in noninterest expense. The operating margin was 27 percent compared to 26 percent a year ago.
Net interest income increased $\$ 241$ million to $\$ 3.2$ billion. Noninterest income, which primarily includes investment and brokerage services income, increased $\$ 152$ million to $\$ 6.1$ billion. Noninterest expense increased $\$ 167$ million to $\$ 6.7$ billion. These increases were driven by the same factors as described in the three-month discussion.
The return on average allocated capital was 23 percent, up from 22 percent, as higher net income was partially offset by an increased capital allocation.
Revenue from MLGWM of $\$ 7.7$ billion increased five percent, and U.S. Trust revenue of $\$ 1.6$ billion increased six percent. These increases were due to the same factors as described in the three-month discussion.

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Key Indicators and Metrics
(Dollars in millions, except as noted)
Revenue by Business
Merrill Lynch Global Wealth Management
U.S. Trust

Other ${ }^{(1)}$
Total revenue, net of interest expense (FTE basis)

| Three Months Ended June 30 |  | Six Months Ended June |  |
| :---: | :---: | :---: | :---: |
|  |  | 30 |  |
| 2017 | 2016 | 2017 | 2016 |
| \$3,874 | \$3,602 | \$7,656 | \$7,269 |
| 819 | 762 | 1,628 | 1,539 |
| 2 | 61 | 3 | 86 |
| \$4,695 | \$4,425 | \$9,287 | \$8,894 |

Client Balances by Business, at period end
Merrill Lynch Global Wealth Management \$2,196,238 \$2,026,392
U.S. Trust 421,180 393,089

Total client balances
\$2,617,418 \$2,419,481
Client Balances by Type, at period end
$\begin{array}{lll}\text { Assets under management } & \$ 990,709 & \$ 832,394\end{array}$
Brokerage assets
Assets in custody
Deposits
Loans and leases (2)
Total client balances
$1,104,775 \quad 1,070,014$
128,538 120,505

Tot
237,131 250,976

Assets Under Management Rollforward
Assets under management, beginning of period
Net client flows ${ }^{(3)}$
Market valuation/other ${ }^{(1)}$
Total assets under management, end of period
$\left.\begin{array}{llll}\$ 946,778 & \$ 890,663 & \$ 886,148 & \$ 900,863 \\ 27,516 & 5,885 & 56,730 & 1,466 \\ 16,415 & (64,154 & ) & 47,831\end{array}\right)(69,935 \quad)$

Associates, at period end ${ }^{(4,5)}$
Number of financial advisors
$17,017 \quad 16,824$
Total wealth advisors, including financial advisors
18,881 18,668
Total primary sales professionals, including financial advisors and wealth advisors

156,265 145,592
\$2,617,418 \$2,419,481

Merrill Lynch Global Wealth Management Metric (5)
Financial advisor productivity ${ }^{(6)}$ (in thousands)
$\$ 1,040 \quad \$ 978 \quad \$ 1,016 \quad \$ 978$
U.S. Trust Metric, at period end (5)

Primary sales professionals
1,665 1,648 Includes the results of BofA Global Capital Management, the cash management division of Bank of America, and
${ }^{(1)}$ certain administrative items. Also reflects the sale to a third party of approximately $\$ 80$ billion of BofA Global Capital Management's AUM during the three months ended June 30, 2016.
(2) Includes margin receivables which are classified in customer and other receivables on the Consolidated Balance Sheet.
(3) For the three and six months ended June 30, 2016, net AUM flows includes $\$ 4.2$ billion and $\$ 8.0$ billion of net outflows related to BofA Global Capital Management's AUM that were sold during the three months ended June 30, 2016.
${ }^{(4)}$ Includes financial advisors in the Consumer Banking segment of 2,206 and 2,244 at June 30, 2017 and 2016.
${ }^{(5)}$ Associate computation is based on headcount.
${ }_{66}$ Financial advisor productivity is defined as annualized MLGWM total revenue, excluding the allocation of certain ${ }^{6}$ asset and liability management (ALM) activities, divided by the total average number of financial advisors (excluding financial advisors in the Consumer Banking segment).

## Client Balances

Client balances managed under advisory and/or discretion of GWIM are AUM and are typically held in diversified portfolios. Fees earned on AUM are calculated as a percentage of clients' AUM balances. The asset management fees charged to clients per year depend on various factors, but are commonly driven by the breadth of the client's relationship and generally range from 50 to 150 bps on their total AUM. The net client AUM flows represent the net change in clients' AUM balances over a specified period of time, excluding market appreciation/depreciation and other adjustments.

Client balances increased \$197.9 billion, or eight percent, to \$2.6 trillion at June 30, 2017 compared to June 30, 2016. The increase in client balances was primarily due to AUM growth which increased $\$ 158.3$ billion, or 19 percent, due to higher market valuations and positive net flows.
Net Migration Summary
GWIM results are impacted by the net migration of clients and their corresponding deposit, loan and brokerage balances primarily to or from Consumer Banking, as presented in the table below. Migrations result from the movement of clients between business segments to better align with client needs.

Net Migration Summary ${ }^{(1)}$
(Dollars in millions)
Total deposits, net - from GWIM
Total loans, net - to (from) GWIM
Total brokerage, net - to (from) GWIM (70 ) (326 ) 24 (566 )
${ }^{(1)}$ Migration occurs primarily between GWIM and Consumer Banking.

Global Banking


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|  | Three Months Ended June 30 |  |  | Six Months Ended June 30 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Average | 2017 | 2016 | $\%$ <br> Change | 2017 | 2016 | $\%$ <br> Change |
| Total loans and leases | \$345,063 | \$334,396 | 3 \% | \$343,966 | \$ 331,519 | 4 \% |
| Total earning assets | 363,844 | 347,347 | 5 | 364,804 | 344,367 | 6 |
| Total assets | 413,950 | 396,008 | 5 | 414,924 | 393,891 | 5 |
| Total deposits | 300,483 | 299,037 | $<1$ | 302,827 | 298,086 | 2 |
| Allocated capital | 40,000 | 37,000 | 8 | 40,000 | 37,000 | 8 |
| Period end |  |  |  | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | $\%$ <br> Change |
| Total loans and leases |  |  |  | \$344,457 | \$ 339,271 | 2 \% |
| Total earning assets |  |  |  | 360,108 | 356,241 | 1 |
| Total assets |  |  |  | 410,580 | 408,330 | 1 |
| Total deposits |  |  |  | 303,205 | 307,630 | (1) |

Global Banking, which includes Global Corporate Banking, Global Commercial Banking, Business Banking and Global Investment Banking, provides a wide range of lending-related products and services, integrated working capital management and treasury solutions, and underwriting and advisory services through our network of offices and client relationship teams. Our lending products and services include commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Our treasury solutions business includes treasury management, foreign exchange and short-term investing options. We also provide investment banking products to our clients such as debt and equity underwriting and distribution, and merger-related and other advisory services. Underwriting debt and equity issuances, fixed-income and equity research, and certain market-based activities are executed through our global broker-dealer affiliates which are our primary dealers in several countries. Within Global Banking, Global Commercial Banking clients generally include middle-market companies, commercial real estate firms and not-for-profit companies. Global Corporate Banking clients generally include large global corporations, financial institutions and leasing clients. Business Banking clients include mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for Global Banking increased $\$ 288$ million to $\$ 1.8$ billion driven by higher revenue and lower provision for credit losses.
Revenue increased $\$ 343$ million to $\$ 5.0$ billion driven by higher net interest income and noninterest income. Net interest income increased $\$ 286$ million to $\$ 2.7$ billion primarily driven by a stable deposit base and the impact of higher short-term rates, as well as loans and leasing-related growth, partially offset by modest margin compression. Noninterest income increased $\$ 57$ million to $\$ 2.3$ billion largely due to higher investment banking fees, partially offset by results from loans and related hedging activity in the fair value option portfolio.
The provision for credit losses decreased $\$ 184$ million to $\$ 15$ million driven by improvement across most of the portfolio, particularly energy. Noninterest expense increased $\$ 29$ million to $\$ 2.2$ billion driven by additional investments in technology and higher FDIC expense, partially offset by lower operating costs.
The return on average allocated capital was 18 percent, up from 16 percent, as higher net income was partially offset by an increased capital allocation. For more information on capital allocated to the business segments, see Business Segment Operations on page 14.

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Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
Net income for Global Banking increased $\$ 925$ million to $\$ 3.5$ billion driven by higher revenue and lower provision for credit losses.
Revenue increased $\$ 844$ million to $\$ 10.0$ billion driven by higher net interest income and noninterest income. Net interest income increased $\$ 517$ million to $\$ 5.5$ billion driven by loans and leasing-related growth, an increased deposit base driven by higher short-term rates and the impact of the allocation of ALM activities, partially offset by margin compression. Noninterest income increased $\$ 327$ million to $\$ 4.5$ billion largely due to higher investment banking fees and treasury fees, partially offset by lower revenues related to leasing activity.
The provision for credit losses decreased $\$ 720$ million to $\$ 32$ million primarily driven by the same factors as described in the three-month discussion. Noninterest expense increased $\$ 18$ million to $\$ 4.3$ billion primarily driven by higher revenue-related incentives and FDIC expense, partially offset by lower personnel and operating expense.

The return on average allocated capital was 18 percent, up from 14 percent, as higher net income was partially offset by an increased capital allocation. For more information on capital allocated to the business segments, see Business Segment Operations on page 14.
Global Corporate, Global Commercial and Business Banking
Global Corporate, Global Commercial and Business Banking each include Business Lending and Global Transaction Services activities. Business Lending includes various lending-related products and services, and related hedging activities, including commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Global Transaction Services includes deposits, treasury management, credit card, foreign exchange and short-term investment products.
The table below and following discussion presents a summary of the results, which exclude certain investment banking activities in Global Banking.

Global Corporate, Global
Commercial and Business Banking Three Months Ended June 30

|  | Global Corporate <br> Banking | Global Commercial <br> Banking |  |  | Business Banking Total |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Services
Total revenue,
net of interest $\begin{array}{llllllll}\$ 1,926 & \$ 1,819 & \$ 1,804 & \$ 1,714 & \$ 310 & \$ 272 & \$ 4,040 & \$ 3,805\end{array}$
expense
Balance Sheet
Average
Total loans and
$\$ 156,614$ \$154,141 \$170,589 \$ 162,683 \$17,844 \$17,523 \$345,047 \$334,347
leases
$\begin{array}{lllllllll}\text { Total deposits } & 143,844 & 140,076 & 120,921 & 124,529 & 35,720 & 34,433 & 300,485 & 299,038\end{array}$
Six Months Ended June 30
Global Corporate Global Commercial
Banking Banking
Business Banking Total

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| 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Revenue

| Business | $\$ 2,195$ | $\$ 2,155$ | $\$ 2,096$ | $\$ 2,059$ | $\$ 200$ | $\$ 190$ | $\$ 4,491$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Lending
Global
$\begin{array}{lllllllll}\text { Transaction } & 1,630 & 1,433 & 1,459 & 1,365 & 408 & 367 & 3,497 & 3,165\end{array}$
Services
Total revenue,
net of interest $\begin{array}{lllllll} & \$ 3,825 & \$ 3,588 & \$ 3,555 & \$ 3,424 & \$ 608 & \$ 557\end{array} \$ 7,988 \quad \$ 7,569$
expense
Balance Sheet
Average
Total loans and
\$155,989 \$152,531 \$170,161 \$161,580 \$17,815 \$17,370 \$343,965 \$331,481
$\begin{array}{llllllll}\text { Total deposits } & 145,134 & 138,856 & 121,907 & 124,925 & 35,790 & 34,307 & 302,831\end{array} \quad 298,088$
Period end
Total loans and
leases
$\begin{array}{lllllllll}\text { Total deposits } & 145,707 & 142,357 & 121,644 & 127,996 & 35,853 & 34,787 & 303,204 & 305,140\end{array}$
Business Lending revenue remained flat for the three months ended June 30, 2017 and increased $\$ 87$ million for the six months ended June 30, 2017 compared to the same periods in 2016. The increase in the six months ended period was driven by the impact of growth in loans and leases, partially offset by credit spread compression.
Global Transaction Services revenue increased $\$ 236$ million and $\$ 332$ million for the three and six months ended June 30, 2017 compared to the same periods in 2016 driven by an
increased deposit base driven by higher short-term rates, as well as higher treasury-related revenue.
Average loans and leases increased three percent and four percent for the three and six months ended June 30, 2017 compared to the same periods in 2016 driven by growth in the commercial and industrial, and leasing portfolios. Average deposits remained relatively unchanged for the three months ended June 30, 2017 and increased two percent for the six months ended June 30, 2017 compared to the same periods in 2016. The

[^5]increase in the six months ended period was due to growth with new and existing clients.
Global Investment Banking
Client teams and product specialists underwrite and distribute debt, equity and loan products, and provide advisory services and tailored risk management solutions. The economics of certain
investment banking and underwriting activities are shared primarily between Global Banking and Global Markets under an internal revenue-sharing arrangement. To provide a complete discussion of our consolidated investment banking fees, the following table presents total Corporation investment banking fees and the portion attributable to Global Banking.

Investment Banking Fees

|  | Three Months Ended June 30 |  |  |  | Six Months Ended June 30 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Global <br> Banking |  | Total Corporation |  | Global Banking |  | Total Corporation |  |
|  |  |  |  |  |  |  |  |  |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| Products |  |  |  |  |  |  |  |  |
| Advisory | \$465 | \$313 | \$483 | \$333 | \$855 | \$618 | \$888 | \$679 |
| Debt issuance | 362 | 390 | 901 | 889 | 774 | 655 | 1,827 | 1,558 |
| Equity issuance | 103 | 96 | 231 | 232 | 226 | 162 | 543 | 420 |
| Gross investment banking fees | 930 | 799 | 1,615 | 1,454 | 1,855 | 1,435 | 3,258 | 2,657 |
| Self-led deals | (47 ) | ) (14 | (83 | ) (46 | ) (71 | ) (25 | ) (142 | ) (96 |

Total investment banking fees $\begin{array}{llllllll}\$ 883 & \$ 785 & \$ 1,532 & \$ 1,408 & \$ 1,784 & \$ 1,410 & \$ 3,116 & \$ 2,561\end{array}$
Total Corporation investment banking fees of $\$ 1.5$ billion and $\$ 3.1$ billion, excluding self-led deals, included primarily within Global Banking and Global Markets, increased nine percent and 22 percent for the three and six months ended June 30, 2017 compared to the same periods in 2016.

The increase was driven by higher advisory fees and higher debt and equity issuance fees driven by an increase in overall client activity and market fee pools.

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Global Markets


Balance Sheet

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Three Months Ended June 30
Average 20172016
Trading-related assets:
Trading account $\quad \$ 221,569 \quad \$ 178,047 \quad 24 \quad \% \quad \$ 212,767 \quad \$ 182,989 \quad 16 \quad \%$ securities
Reverse repurchases
Securities
borrowed
Derivative assets
Total trading-related 452,563
assets (1)
Total loans and
leases
Total earning
assets (1)
$\begin{array}{lllllll}\text { Total assets } & 645,228 & 580,701 & 11 & 626,225 & 580,963 & 8\end{array}$
Total deposits $31,919 \quad 34,518 \quad(8 \quad$ ) 32,535 $35,202 \quad$ ( 8 )

Allocated
capital

Period end
Total
trading-related
assets ${ }^{(1)}$
Total loans and
leases
Total earning
assets (1)
Total assets
Total deposits

Six Months Ended June
30

| \% | 2017 | 2016 |
| :--- | :--- | :--- |

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arrangement. Global Banking originates certain deal-related transactions with our corporate and
commercial clients that are executed and distributed by Global Markets. For more information on investment banking fees on a consolidated basis, see page 23 .
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
Net income for Global Markets decreased $\$ 283$ million to $\$ 830$ million driven by lower sales and trading revenue, investment banking fees and increased noninterest expense. Net DVA losses were $\$ 159$ million compared to losses of $\$ 164$ million. Sales and trading revenue, excluding net DVA, decreased $\$ 332$ million primarily due to weaker performance in fixed-income, currencies and commodities (FICC) macro products and emerging markets. Noninterest expense increased $\$ 66$ million to $\$ 2.6$ billion as additional investments in technology were partially offset by lower operating costs.
Average earning assets increased $\$ 33.8$ billion to $\$ 456.6$ billion primarily driven by targeted growth in client financing activities in the global equities business.
The return on average allocated capital was 10 percent, down from 12 percent as lower net income was partially offset by a decreased capital allocation.

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Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
Net income for Global Markets increased $\$ 42$ million to $\$ 2.1$ billion. Net DVA losses were $\$ 289$ million compared to losses of $\$ 10$ million. Excluding net DVA, net income increased $\$ 215$ million to $\$ 2.3$ billion primarily driven by higher sales and trading revenue and investment banking fees, partially offset by higher noninterest expense. Sales and trading revenue, excluding net DVA, increased $\$ 409$ million primarily due to a stronger performance across credit and mortgage products. Noninterest expense increased $\$ 374$ million to $\$ 5.4$ billion primarily due to litigation expense in the six months ended June 30, 2017 compared to a litigation recovery in the same period in 2016 and higher revenue-related expenses.
Average earning assets increased $\$ 22.8$ billion to $\$ 443.3$ billion and period-end trading-related assets increased $\$ 55.6$ billion to $\$ 436.2$ billion both primarily driven by targeted growth in client financing activities in the global equities business.
The return on average allocated capital was 12 percent, up from 11 percent, reflecting higher net income and a decreased capital allocation.

## Sales and Trading Revenue

Sales and trading revenue includes unrealized and realized gains and losses on trading and other assets, net interest income, and fees primarily from commissions on equity securities. Sales and trading revenue is segregated into fixed-income (government debt obligations, investment and non-investment grade corporate debt obligations, commercial MBS, residential mortgage-backed securities (RMBS), collateralized loan obligations (CLOs), interest rate and credit derivative contracts), currencies (interest rate and foreign exchange contracts), commodities (primarily futures, forwards, swaps and options) and equities (equity-linked derivatives and cash equity activity). The following table and related discussion present sales and trading revenue, substantially all of which is in Global Markets, with the remainder in Global Banking. In addition, the following table and related discussion present sales and trading revenue excluding the impact of net DVA, which is a non-GAAP financial measure. We believe the use of this non-GAAP financial measure provides additional useful information to assess the underlying performance of these businesses and to allow better comparison of period-to-period operating performance.

Sales and Trading Revenue ${ }^{(1,2)}$
(Dollars in millions)
Sales and trading revenue
Fixed-income, currencies and commodities
Equities
Total sales and trading revenue
Sales and trading revenue, excluding net DVA ${ }^{(3)}$
Fixed-income, currencies and commodities
Equities
Total sales and trading revenue, excluding net DVA $\$ 3,369 \$ 3,701 \$ 7,398 \$ 6,989$
Includes FTE adjustments of $\$ 52$ million and $\$ 99$ million for the three and six months ended June 30, 2017
${ }^{(1)}$ compared to $\$ 44$ million and $\$ 87$ million for the same periods in 2016 . For more information on sales and trading revenue, see Note 2 - Derivatives to the Consolidated Financial Statements.

Includes Global Banking sales and trading revenue of $\$ 56$ million and $\$ 114$ million for the three and six months ended June 30, 2017 compared to $\$ 120$ million and $\$ 280$ million for the same periods in 2016.
${ }^{(3)}$ FICC and Equities sales and trading revenue, excluding net DVA, is a non-GAAP financial measure. FICC net DVA losses were $\$ 148$ million and $\$ 268$ million for the three and six months ended June 30, 2017 compared to net DVA losses of $\$ 159$ million and $\$ 19$ million for the same periods in 2016. Equities net DVA losses were $\$ 11$ million and $\$ 21$ million for the three and six months ended June 30, 2017 compared to net DVA losses of $\$ 5$
million and gains of $\$ 9$ million for the same periods in 2016.
The explanations for period-over-period changes in sales and trading, FICC and Equities revenue, as set forth below, would be the same if net DVA was included.
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
FICC revenue, excluding net DVA, decreased $\$ 361$ million due to weaker performance in rates and emerging markets relative to an especially strong quarter in the prior year. Equities revenue,
excluding net DVA, increased $\$ 29$ million primarily due to growth in client financing activities offset by slower secondary markets.
Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
FICC revenue, excluding net DVA, increased $\$ 304$ million due to strength in credit and mortgage products. Equities revenue, excluding net DVA, increased $\$ 105$ million primarily due to growth in client financing activities.

All Other

Three Months Ended June 30

| (Dollars in millions) | 2017 | 2016 | \% Change | 2017 | 2016 | \% Chang |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net interest income (FTE basis) | \$91 | \$218 | (58 )\% | \$181 | \$ 349 | (48 )\% |
| Noninterest income: <br> Card income | 28 | 54 | (48 ) | 70 | 99 | (29 |
| Mortgage banking income |  | 44 | 102 | 91 | 286 | (68 |
| Gains on sales of debt securities | 101 | 249 | (59 ) | 153 | 439 | (65 |
| All other income (loss) | 569 | (281 | ) $\mathrm{n} / \mathrm{m}$ | 289 | (614 | ) (147) |
| Total noninterest income | 787 | 66 | $\mathrm{n} / \mathrm{m}$ | 603 | 210 | $\mathrm{n} / \mathrm{m}$ |
| Total revenue, net of interest expense (FTE basis) | 878 | 284 | $\mathrm{n} / \mathrm{m}$ | 784 | 559 | 40 |

Net interes income (FTE

Noninterest
income:

Total revenue, net
of interest
basis)
$\begin{array}{lllll}\text { Provision for } & (159 \quad) 42 & \mathrm{n} / \mathrm{m} \quad(185 \quad)(79 & 134\end{array}$
credit losses
Noninterest
expense
Loss before
income taxes (85 ) (840 ) (90 ) (2,342 ) (2,826 ) (17 )
(FTE basis)
Income tax
expense (benefit) 98 (633 ) (115) (1,325 ) (1,523 ) (13 )
(FTE basis)
Net loss $\quad \$(183) \$(207 \quad)(12) \quad \$(1,017) \$(1,303 \quad)(22)$
Balance Sheet ${ }^{(1)}$

Three Months Ended June 30
$\left.\begin{array}{llllllll}\text { Average } & 2017 & 2016 & \begin{array}{l}\text { \% } \\ \text { Change }\end{array} & 2017 & 2016 & \begin{array}{l}\text { \% } \\ \text { Change }\end{array} \\ \text { Total loans and } & \$ 87,667 & \$ 111,553 & (21 & ) \% & \$ 91,250 & \$ 114,803 & (21\end{array}\right) \%$

Period end
Total loans and leases ${ }^{(2)}$

June 30 December 31 \% 20172016 Change $\$ 78,830 \quad \$ 96,713 \quad(18) \%$

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## Total deposits <br> 26,603 23,061 <br> 15

In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, we allocate assets from All Other to those segments to match liabilities (i.e., deposits) and allocated shareholders'
${ }^{(1)}$ equity. Such allocated assets were $\$ 521.8$ billion and $\$ 521.9$ billion for the three and six months ended June 30, 2017 compared to $\$ 499.5$ billion and $\$ 496.5$ billion for the same periods in 2016, and $\$ 517.7$ billion and $\$ 518.7$ billion at June 30, 2017 and December 31, 2016.
Included $\$ 9.2$ billion of non-U.S. credit card loans, which were included in assets of business held for sale on the
${ }^{(2)}$ Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
$\mathrm{n} / \mathrm{m}=$ not meaningful
All Other consists of ALM activities, equity investments, non-core mortgage loans and servicing activities, the net impact of periodic revisions to the MSR valuation model for both core and non-core MSRs and the related economic hedge results and ineffectiveness, other liquidating businesses, residual expense allocations and other. ALM activities encompass certain residential mortgages, debt securities, interest rate and foreign currency risk management activities, the impact of certain allocation methodologies and accounting hedge ineffectiveness. The results of certain ALM activities are allocated to our business segments. For more information on our ALM activities, see Note 17 - Business Segment Information to the Consolidated Financial Statements. Equity investments include our merchant services joint venture as well as Global Principal Investments (GPI) which is comprised of a portfolio of equity, real estate and other alternative investments. For more information on our merchant services joint venture, see Note 10 Commitments and Contingencies to the Consolidated Financial Statements.
On June 1, 2017, we completed the sale of our non-U.S. consumer credit card business, resulting in a $\$ 103$ million after-tax gain associated with the sale. For more information on the sale of our non-U.S. consumer credit card business, see Recent Events on page 3 and Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements.
The Corporation classifies consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status. For more information on the core and non-core portfolios, see Consumer Portfolio Credit Risk Management on page 39. Residential mortgage loans that are held for ALM purposes,
including interest rate or liquidity risk management, are classified as core and are presented on the balance sheet of All Other. For more information on our interest rate and liquidity risk management activities, see Liquidity Risk on page 35 and Interest Rate Risk Management for the Banking Book on page 63. During the six months ended June 30, 2017, residential mortgage loans held for ALM activities decreased $\$ 3.3$ billion to $\$ 31.4$ billion at June 30, 2017 primarily as a result of payoffs and paydowns outpacing new originations. Non-core residential mortgage and home equity loans, which are principally run-off portfolios, including certain loans accounted for under the fair value option and MSRs pertaining to non-core loans serviced for others, are also held in All Other. During the six months ended June 30, 2017, total non-core loans decreased $\$ 5.9$ billion to $\$ 47.2$ billion at June 30, 2017 due primarily to payoffs and paydowns, as well as loan sales.
Three Months Ended June 30, 2017 Compared to Three Months Ended June 30, 2016
The net loss for All Other decreased $\$ 24$ million to $\$ 183$ million due to a $\$ 793$ million pre-tax gain recognized in connection with the sale of the non-U.S. consumer credit card business, a benefit in the provision for credit losses and higher mortgage banking income, offset by higher income tax expense, lower gains on sales of debt securities, lower net interest income and higher noninterest expense.
The provision for credit losses improved $\$ 201$ million to a benefit of $\$ 159$ million driven by reserve releases associated with the continued improvement in non-core consumer real estate loans as well as continued run-off of the portfolio. Noninterest expense increased $\$ 40$ million to $\$ 1.1$ billion driven by a $\$ 295$ million

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impairment charge related to certain data centers in the process of being sold and an increase in severance costs, offset by lower operating and non-core mortgage costs.
Income tax expense was $\$ 98$ million compared to a benefit of $\$ 633$ million driven by tax expense of $\$ 690$ million recognized in connection with the sale of the non-U.S. consumer credit card business, which related to gains on derivatives used to hedge the currency risk of the net investment. Both periods included income tax benefit adjustments to eliminate the FTE treatment of certain tax credits recorded in Global Banking.
Six Months Ended June 30, 2017 compared to Six Months Ended June 30, 2016
The net loss for All Other decreased $\$ 286$ million to $\$ 1.0$ billion due to a $\$ 793$ million pre-tax gain related to the sale of the non-U.S. consumer credit card business, a decrease in noninterest expense and a benefit in the provision for credit losses, offset by lower gains on sales of debt securities, a decrease in the income tax benefit, lower net interest income and lower mortgage banking income.
Mortgage banking income in All Other decreased $\$ 195$ million primarily driven by lower MSR results, net of the related hedge performance, and lower servicing fees driven by a smaller servicing portfolio. Gains on sales of loans, including nonperforming and other delinquent loans, and re-performing loans were $\$ 44$ million compared to gains of $\$ 178$ million in the same period in 2016.
The benefit in the provision for credit losses increased $\$ 106$ million to a benefit of $\$ 185$ million driven by the same factors as described in the three-month discussion. Noninterest expense decreased $\$ 153$ million to $\$ 3.3$ billion driven by lower litigation expense and a decline in non-core mortgage servicing costs, partially offset by the factors as described in the three-month discussion.
The income tax benefit was $\$ 1.3$ billion compared to a benefit of $\$ 1.5$ billion. The decrease was driven by a $\$ 690$ million tax expense as described in the three-month discussion, partially offset by a tax benefit related to a new accounting standard on share-based compensation. Both periods included income tax benefit adjustments to eliminate the FTE treatment of certain tax credits recorded in Global Banking.
Off-Balance Sheet Arrangements and Contractual Obligations
We have contractual obligations to make future payments on debt and lease agreements. Additionally, in the normal course of business, we enter into contractual arrangements whereby we commit to future purchases of products or services from unaffiliated parties. For more information on obligations and commitments, see Note 10 - Commitments and Contingencies to the Consolidated Financial Statements, Off-Balance Sheet Arrangements and Contractual Obligations in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K, as well as Note 11 - Long-term Debt and Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Representations and Warranties
For more information on representations and warranties, the liability for representations and warranties exposures and the corresponding estimated range of possible loss, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the

Corporation's 2016 Annual Report on Form 10-K and, for more information related to the sensitivity of the assumptions used to estimate our liability for representations and warranties, see Complex Accounting Estimates Representations and Warranties Liability in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K. At June 30, 2017 and December 31, 2016, we had $\$ 17.6$ billion and $\$ 18.3$ billion of unresolved repurchase claims, predominately related to subprime and pay option first-lien loans and home equity loans. Outstanding repurchase claims remain unresolved primarily due to (1) the level of detail, support and analysis accompanying such claims, which impact overall claim quality and, therefore, claim resolution and (2) the lack of an established process to resolve disputes related to these claims.
In addition to unresolved repurchase claims, we have received notifications from sponsors of third-party securitizations with whom we engaged in whole-loan transactions indicating that we may have indemnity obligations with respect to loans for which we have not received a repurchase request. These outstanding notifications totaled $\$ 1.3$ billion at both June 30, 2017 and December 31, 2016. There were no new notifications received during the six months ended June 30, 2017.

The liability for representations and warranties and corporate guarantees is included in accrued expenses and other liabilities on the Consolidated Balance Sheet and the related provision is included in mortgage banking income. At June 30, 2017 and December 31, 2016, the liability for representations and warranties was $\$ 2.2$ billion and $\$ 2.3$ billion. For the three and six months ended June 30, 2017, the representations and warranties provision was a benefit of $\$ 2$ million and $\$ 5$ million compared to a provision of $\$ 17$ million and $\$ 59$ million for the same periods in 2016. In addition, we currently estimate that the range of possible loss for representations and warranties exposures could be up to $\$ 2$ billion over existing accruals at June 30, 2017. The estimated range of possible loss represents a reasonably possible loss, but does not represent a probable loss, and is based on currently available information, significant judgment and a number of assumptions that are subject to change.
Future provisions and/or ranges of possible loss associated with obligations under representations and warranties may be significantly impacted if future experiences are different from historical experience or our understandings, interpretations or assumptions. Adverse developments, with respect to one or more of the assumptions underlying the liability for representations and warranties and the corresponding estimated range of possible loss, such as counterparties successfully challenging or avoiding the application of the relevant statute of limitations, could result in significant increases to future provisions and/or the estimated range of possible loss.
Other Mortgage-related Matters
We continue to be subject to additional mortgage-related litigation and disputes, as well as governmental and regulatory scrutiny and investigations, related to our past and current origination, servicing, transfer of servicing and servicing rights, servicing compliance obligations, foreclosure activities, indemnification obligations, and mortgage insurance and captive reinsurance practices with mortgage insurers. The ongoing environment of additional regulation, increased regulatory compliance obligations, and enhanced regulatory enforcement, combined with ongoing uncertainty related to the continuing evolution of the regulatory

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environment, has resulted in increased operational and compliance costs and may limit our ability to continue providing certain products and services. For more information on management's estimate of the aggregate range of possible loss for certain litigation matters and on regulatory investigations, see Note 10 - Commitments and Contingencies to the Consolidated Financial Statements.
Managing Risk
Risk is inherent in all our business activities. The seven key types of risk faced by the Corporation are strategic, credit, market, liquidity, compliance, operational and reputational risks. Sound risk management enables us to serve our customers and deliver for our shareholders. If not managed well, risks can result in financial loss, regulatory sanctions and penalties, and damage to our reputation, each of which may adversely impact our ability to execute our business strategies. The Corporation takes a comprehensive approach to risk management with a defined Risk Framework and an articulated Risk Appetite Statement which are approved annually by the Enterprise Risk Committee (ERC) and the Board.
Our Risk Framework is the foundation for comprehensive management of the risks facing the Corporation. The Risk Framework sets forth clear roles, responsibilities and accountability for the management of risk and provides a blueprint for how the Board, through delegation of authority to committees and executive officers, establishes risk appetite and associated limits for our activities.
Our Risk Appetite Statement is intended to ensure that the Corporation maintains an acceptable risk profile by providing a common framework and a comparable set of measures for senior management and the Board to clearly indicate the level of risk the Corporation is willing to accept. Risk appetite is set at least annually and is aligned with the Corporation's strategic, capital and financial operating plans. Our line of business strategies and risk appetite are also similarly aligned.
For more information on our risk management activities, including our Risk Framework, and the key types of risk faced by the Corporation, see Managing Risk through Reputational Risk sections in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
Capital Management
The Corporation manages its capital position so its capital is more than adequate to support its business activities and to maintain
capital, risk and risk appetite commensurate with one another. Additionally, we seek to maintain safety and soundness at all times, even under adverse scenarios, take advantage of organic growth opportunities, meet obligations to creditors and counterparties, maintain ready access to financial markets, continue to serve as a credit intermediary, remain a source of strength for our subsidiaries, and satisfy current and future regulatory capital requirements. Capital management is integrated into our risk and governance processes, as capital is a key consideration in the development of our strategic plan, risk appetite and risk limits.
We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. For additional information, see Business Segment Operations on page 14.
CCAR and Capital Planning
The Federal Reserve requires BHCs to submit a capital plan and requests for capital actions on an annual basis, consistent with the rules governing the CCAR capital plan.
On June 28, 2017, following the Federal Reserve's non-objection to our 2017 CCAR capital plan, the Board authorized the repurchase of $\$ 12.9$ billion in common stock from July 1, 2017 through June 30, 2018, including approximately $\$ 900$ million to offset the effect of equity-based compensation plans during the same period. The common stock repurchase authorization includes both common stock and warrants.
The timing and amount of common stock repurchases will be subject to various factors, including the Corporation's capital position, liquidity, financial performance and alternative uses of capital, stock trading price, and general market conditions, and may be suspended at any time. The common stock repurchases may be effected through open market purchases or privately negotiated transactions, including repurchase plans that satisfy the conditions of Rule 10b5-1 of the Securities Exchange Act of 1934. As a "well-capitalized" BHC, we may notify the Federal Reserve of our intention to make additional capital distributions not to exceed 0.25 percent of Tier 1 capital, and which were not contemplated in our capital plan, subject to the Federal Reserve's non-objection.

During the 12 months ended June 30, 2017, we had repurchased $\$ 7.7$ billion of common stock, pursuant to the Board's repurchase authorizations announced on June 29, 2016 and January 13, 2017. These repurchase authorizations expired on June 30, 2017.

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## Regulatory Capital

As a financial services holding company, we are subject to regulatory capital rules issued by U.S. banking regulators including Basel 3, which includes certain transition provisions through January 1, 2019. The Corporation and its primary affiliated banking entity, BANA, are Basel 3 Advanced approaches institutions.
Basel 3 Overview
Basel 3 updated the composition of capital and established a Common equity tier 1 capital ratio. Common equity tier 1
capital primarily includes common stock, retained earnings and accumulated other comprehensive income (OCI), net of deductions and adjustments primarily related to goodwill, deferred tax assets, intangibles, MSRs and defined benefit pension assets. Under the Basel 3 regulatory capital transition provisions, certain deductions and adjustments to Common equity tier 1 capital are phased in through January 1, 2018. As of January 1, 2017, under the transition provisions, 80 percent of these deductions and adjustments was recognized. Basel 3 also revised minimum capital ratios and buffer requirements, added a supplementary leverage ratio (SLR), and addressed the adequately capitalized minimum requirements under the Prompt Corrective Action (PCA) framework. Finally, Basel 3 established two methods of calculating risk-weighted assets, the Standardized approach and the Advanced approaches. The Standardized approach relies primarily on supervisory risk weights based on exposure type, and the Advanced approaches determine risk weights based on internal models.
As an Advanced approaches institution, we are required to report regulatory risk-based capital ratios and risk-weighted assets under both the Standardized and Advanced approaches. The approach that yields the lower ratio is used to assess capital adequacy including under the PCA framework.
Minimum Capital Requirements
Minimum capital requirements and related buffers are being phased in from January 1, 2014 through January 1, 2019. The PCA framework establishes categories of capitalization including "well capitalized," based on the Basel 3 regulatory ratio requirements. U.S. banking regulators are required to take certain mandatory actions depending on the category of capitalization, with no mandatory actions required for "well-capitalized" banking organizations, which included BANA at June 30, 2017.
We are subject to a capital conservation buffer, a countercyclical capital buffer and a global systemically important
bank (G-SIB) surcharge that are being phased in over a three-year period ending January 1, 2019. Once fully phased in, the Corporation's risk-based capital ratio requirements will include a capital conservation buffer greater than 2.5 percent, plus any applicable countercyclical capital buffer and a G-SIB surcharge in order to avoid restrictions on capital distributions and discretionary bonus payments. The buffers and surcharge must be comprised solely of Common equity tier 1 capital. Under the phase-in provisions, we were required to maintain a capital conservation buffer greater than 1.25 percent plus a G-SIB surcharge of 1.5 percent at June 30, 2017. The countercyclical capital buffer is currently set at zero. We estimate that our fully phased-in G-SIB surcharge will be 2.5 percent. The G-SIB surcharge may differ from this estimate over time. For more information on the Corporation's transition and fully phased-in capital ratios and regulatory requirements, see Table 11.
Supplementary Leverage Ratio
Basel 3 requires Advanced approaches institutions to disclose an SLR. The numerator of the SLR is quarter-end Basel 3 Tier 1 capital. The denominator is total leverage exposure based on the daily average of the sum of on-balance sheet exposures less permitted Tier 1 deductions, as well as the simple average of certain off-balance sheet exposures, as of the end of each month in a quarter. Effective January 1, 2018, the Corporation will be required to maintain a minimum SLR of 3.0 percent, plus a leverage buffer of 2.0 percent in order to avoid certain restrictions on capital distributions and discretionary bonus payments. Insured depository institution subsidiaries of BHCs will be required to maintain a minimum 6.0 percent SLR to be considered "well capitalized" under the PCA framework.
Capital Composition and Ratios
Table 11 presents Bank of America Corporation's transition and fully phased-in capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches as measured at June 30, 2017 and December 31, 2016. Fully phased-in estimates are non-GAAP financial measures that the Corporation considers to be useful measures in evaluating compliance with new regulatory capital requirements that are not yet effective. For reconciliations to GAAP financial measures, see Table 14. As of June 30, 2017 and December 31, 2016, the

Corporation met the definition of "well capitalized" under current regulatory requirements.
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Table 11 Bank of America Corporation Regulatory Capital under Basel $3{ }^{(1)}$

June 30, 2017
Transition
$\begin{array}{llllll}\text { (Dollars } & \text { StandardizedAdvanced } & \text { Regulatory } & \text { Standardized } & \text { Advanced } & \text { Regulatory } \\ \text { in } & \text { Approaches } & \text { Minimum }\end{array}$
Risk-based
capital
metrics:
Common
$\begin{array}{lllll}\begin{array}{l}\text { equity } \\ \text { tier 1 }\end{array} & \$ 171,431 & \$ 171,431 & \$ 168,704 & \$ 168,704\end{array}$
capital
$\begin{array}{lllll}\text { Tier } 1 & 194,822 & 194,822 & 193,576 & 193,576\end{array}$
capital
194,822 194,822 193,576 193,576

Total
$\begin{array}{llll}\text { capital }{ }^{(5)} & 231,696 & 222,671 & 228,536 \\ 219,511\end{array}$
Risk-weighted
assets (in 1,390 1,478 $\quad 1,405 \quad 1,464$
billions)
Common
equity
$\begin{array}{llllllllll}\text { tier } 1 & 12.3 & \% & 11.6 & \% & 7.25 & \% & 12.0 & \% & 11.5\end{array} \%$
capital
ratio
Tier 1
$\begin{array}{lllllll}\text { capital } & 14.0 & 13.2 & 8.75 & 13.8 & 13.2 & 11.0\end{array}$
ratio
Total
$\begin{array}{lllllll}\text { capital } & 16.7 & 15.1 & 10.75 & 16.3 & 15.0 & 13.0\end{array}$
ratio
Leverage-based
metrics:
Adjusted
quarterly
$\begin{array}{lll}\begin{array}{l}\text { average } \\ \text { assets (in }\end{array} \$ 2,192 & \$ 2,192 & \$ 2,192\end{array}$
billions)
(6)

Tier 1
$\begin{array}{lllllll}\text { leverage } 8.9 & \% & 8.9 & \% & 4.0 & 8.8 & \% \\ 8.8 & \%\end{array}$
ratio
SLR
leverage
exposure

## (in

billions)
SLR $\quad 7.0$ \% 5.0
December 31, 2016
Risk-based
capital
metrics:
Common
$\begin{array}{lllll}\begin{array}{l}\text { equity } \\ \text { tier 1 }\end{array} & \$ 168,866 & \$ 168,866 & \$ 162,729 & \$ 162,729\end{array}$
capital
Tier 1
capital
Total
capital (5) $228,187 \quad 218,98$
Risk-weighted
assets (in 1,399 1,530 1,417 1,512
billions)
Common
equity
$\begin{array}{llllllllll}\text { tier } 1 & 12.1 & \% & 11.0 & \% & 5.875 & \% & 11.5 & \% & 10.8\end{array} \% 9.5 \quad \%$
capital
ratio
Tier 1
$\begin{array}{lllllll}\text { capital } & 13.6 & 12.4 & 7.375 & 13.2 & 12.4 & 11.0\end{array}$
ratio
Total

| capital | 16.3 | 14.3 | 9.375 | 15.8 | 14.2 | 13.0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

ratio
Leverage-based
metrics:
Adjusted
quarterly
average
assets (in $\$ 2,131 \quad \$ 2,131$
\$2,131 $\$ 2,131$
billions)
(6)

Tier 1

| leverage 8.9 | $\%$ | 8.9 | $\%$ | 4.0 | 8.8 |
| :--- | :--- | :--- | :--- | :--- | :--- |

ratio
SLR
leverage
exposure
\$2,702
(in
billions)
SLR
$6.9 \quad \% 5.0$
${ }^{(1)}$ As an Advanced approaches institution, we are required to report regulatory capital risk-weighted assets and ratios under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to

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assess capital adequacy and was the Advanced approaches method at June 30, 2017 and December 31, 2016. The June 30, 2017 and December 31, 2016 amounts include a transition capital conservation buffer of 1.25 percent and 0.625 percent, and a transition G-SIB surcharge of 1.5 percent and 0.75 percent. The countercyclical capital buffer for both periods is zero.
Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our internal models methodology (IMM) for calculating counterparty credit risk regulatory capital for derivatives. As of June 30, 2017, we did not have regulatory approval of the IMM model. Basel 3 fully phased-in Common equity tier 1 capital ratio would be reduced by approximately 25 bps if IMM is not used.
Fully phased-in regulatory minimums assume a capital conservation buffer of 2.5 percent and estimated G-SIB
(4) surcharge of 2.5 percent. The estimated fully phased-in countercyclical capital buffer is currently set at zero. We will be subject to fully phased-in regulatory minimums on January 1, 2019. The fully phased-in SLR minimum assumes a leverage buffer of 2.0 percent and is applicable on January 1, 2018.
(5) Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.
${ }^{(6)}$ Reflects adjusted average total assets for the three months ended June 30, 2017 and December 31, 2016.
Common equity tier 1 capital under Basel 3 Advanced - Transition was $\$ 171.4$ billion at June 30, 2017, an increase of $\$ 2.6$ billion compared to December 31, 2016 driven by earnings, partially offset by common stock repurchases, dividends and the phase-in under Basel 3 transition provisions of deductions, primarily related to deferred tax assets. During the six months ended June 30, 2017, Total capital increased $\$ 3.7$ billion primarily
driven by the same factors as the increase in Common equity tier 1 capital.
Risk-weighted assets decreased $\$ 52$ billion during the six months ended June 30, 2017 to $\$ 1,478$ billion primarily due to model improvements, the sale of the non-U.S. consumer credit card business, improved credit quality and lower market risk.

[^6]Table 12 presents the capital composition as measured under Basel 3 - Transition at June 30, 2017 and December 31, 2016.

Table 12 Capital Composition under Basel 3 - Transition ${ }^{1,2)}$
(Dollars in millions)
Total common shareholders' equity
Goodwill
Deferred tax assets arising from net operating loss and tax credit carryforwards Adjustments for amounts recorded in accumulated OCI attributed to defined benefit postretirement plans
net (gains) losses on derivatives recorded in accumulated OCI,923 1,402
net-of-tax
Intangibles, other than mortgage servicing rights and goodwill (1,354 ) (1,198 )
Defined benefit pension fund assets (723 ) (512 )
DVA related to liabilities and derivatives $623 \quad 413$
Other
(248 ) (84 )
Common equity tier 1 capital
171,431 168,866
Qualifying preferred stock, net of issuance cost
$25,220 \quad 25,220$
Deferred tax assets arising from net operating loss and tax
credit carryforwards
Defined benefit pension fund assets
$(1,457)(3,318)$

DVA related to liabilities and derivatives under transition
Other
Total Tier 1 capital
Long-term debt qualifying as Tier 2 capital
Eligible credit reserves included in Tier 2 capital
Nonqualifying capital instruments subject to phase out from
Tier 2 capital
Other (21 ) (5)

Total Basel 3 Capital \$222,671 \$218,981
${ }^{(1)}$ See Table 11, footnote 1.
Deductions from and adjustments to regulatory capital subject to transition provisions under Basel 3 are generally
${ }_{(2)}$ recognized in 20 percent annual increments, and will be fully recognized as of January 1, 2018. Any assets that are a direct deduction from the computation of capital are excluded from risk-weighted assets and adjusted average total assets.

Table 13 presents the components of our risk-weighted assets as measured under Basel 3 - Transition at June 30, 2017 and December 31, 2016.

Table 13 Risk-weighted assets under Basel 3 - Transition
(Dollars in billions)
Credit risk
Market risk

| June 30, 2017 | December 31, 2016 |
| :--- | :--- |
| StandardAzdxdnced | Standardazdanced |
| ApproacApproache | ApproacApproaches |
| $\$ 1,331 \$ 864$ | $\$ 1,334 \$ 903$ |
| $59 \quad 57$ | $65 \quad 63$ |

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Operational risk
Risks related to CVA
Total risk-weighted assets
$\mathrm{n} / \mathrm{a}=$ not applicable

| $\mathrm{n} / \mathrm{a}$ | 500 | $\mathrm{n} / \mathrm{a}$ | 500 |
| :--- | :--- | :--- | :--- |

n/a $57 \quad \mathrm{n} / \mathrm{a} \quad 64$
\$1,390 \$ 1,478 \$1,399 \$ 1,530

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Table 14 presents a reconciliation of regulatory capital in accordance with Basel 3 Standardized - Transition to the Basel 3 Standardized approach fully phased-in estimates and Basel 3 Advanced approaches fully phased-in estimates at June 30, 2017 and December 31, 2016.

Regulatory Capital
Table $14 \begin{aligned} & \text { Reconciliations between } \\ & \text { Basel } 3 \text { Transition to Fully }\end{aligned}$
Phased-in ${ }^{(1)}$
(Dollars
in June 30 December 31
$\begin{array}{ll}\text { in } \\ \text { millions) } & 2017 \\ 2016\end{array}$
Common
equity
tier $1 \quad \$ 171,431 \quad \$ 168,866$
capital
(transition)
Deferred
tax assets
arising
from net
operating
loss and (1,457 ) (3,318 )
tax credit
carryforwards
phased in
during
transition
Accumulated
OCI
phased in (845 ) (1,899 )
during
transition
Intangibles
phased in (338 ) (798 )
during
transition
Defined
benefit
pension
fund
assets
(181 ) (341 )
phased in
during
transition
DVA $156 \quad 276$
related to
liabilities
and
derivatives
phased in
during
transition
Other
adjustments
and
deduction $\$ 62$ ) (57 )
phased in
during
transition
Common
equity
$\begin{array}{lll}\text { tier } 1 \\ \text { capital }\end{array} \quad 168,704 \quad 162,729$
(fully
phased-in)
Additional
Tier 1
$\begin{array}{lll}\text { capital } & 23,391 & 21,449\end{array}$
(transition)
Deferred
tax assets
arising
from net
operating
$\begin{array}{ll}\text { loss and } \\ \text { tax credit } \\ \text { 1,457 } & 3,318\end{array}$
carryforwards
phased
out
during
transition
Defined
benefit
pension
fund
assets $181 \quad 341$
phased
out
during
transition
DVA
related to
liabilities
and
derivative 156 ) (276 )
phased
out
during
transition
$(1 \quad)(2)$

Other
transition
adjustments
to
additional
Tier 1
capital
Additional
Tier 1
capital $24,872 \quad 24,830$
(fully
phased-in)
Tier 1
$\begin{array}{lll}\text { capital } \\ \text { (fully } & 193,576 & 187,559\end{array}$
phased-in)
Tier 2
capital 27,849 28,666
(transition)
Nonqualifying
capital
instruments
phased $(1,893)(2,271)$
out
during
transition
Other
adjustments
to Tier 2 9,004 $\quad 9,176$
capital
Tier 2
capital
(fully 34,960 35,571
phased-in)
Basel 3
Standardized
approach
Total 228,536 223,130
capital
(fully
phased-in)
Change
in Tier 2
qualifying $_{\text {allowance }}(9,025 \quad)(9,206 \quad)$
for credit
losses
Basel 3 \$219,511 \$213,924
Advanced
approaches
Total
capital
(fully
phased-in)
Risk-weighted
assets - As
reported
to Basel 3
(fully
phased-in)
Basel 3
Standardized
approach
risk-weighted
assets as
reported
Changes
in
risk-weighted
$\begin{array}{lll}\text { assets } \\ \text { from } & 15,413 & 17,638\end{array}$
from
reported
to fully
phased-in
Basel 3
Standardized
approach
risk-weightdd405,109 \$1,417,115
assets
(fully
phased-in)
Basel 3
Advanced
approaches ${ }^{\text {risk }}$, 477,633 \$1,529,903
risk-weighted
assets as
reported
Changes
in
risk-weighted
assets
from $(13,545 \quad)(18,113 \quad)$
from
reported
to fully
phased-in
Basel 3 \$1,464,088 \$1,511,790
Advanced
approaches
risk-weighted
assets

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(fully
phased-in)
(2)
${ }^{(1)}$ See Table 11, footnote 1.
Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our IMM
(2) for calculating counterparty credit risk regulatory capital for derivatives. As of June 30, 2017, we did not have regulatory approval of the IMM model. Basel 3 fully phased-in Common equity tier 1 capital ratio would be reduced by approximately 25 bps if IMM is not used.
Bank of America, N.A. Regulatory Capital
Table 15 presents transition regulatory capital information for BANA in accordance with Basel 3 Standardized and Advanced approaches as measured at June 30, 2017 and December 31, 2016. As of June 30, 2017, BANA met the definition of "well capitalized" under the PCA framework.

Table $15 \begin{aligned} & \text { Bank of America, N.A. Regulatory Capital under } \\ & \text { Basel } 3\end{aligned}$

June 30, 2017
Standardized Approach Advanced Approaches
(Dollars
in

millions) Ratio Amount \begin{tabular}{l}
Minimum <br>
Required $^{(1)}$

 Ratio Amount 

Minimum <br>
Required ${ }^{(1)}$
\end{tabular}

Common
equity
tier 1 $12.8 \%$ \$149,759 $6.5 \quad \% \quad 14.7 \% ~ \$ 149,759 \quad 6.5 \quad \%$
capital
$\begin{array}{lllllll}\text { Tier 1 } & 12.8 & 149,759 & 8.0 & 14.7 & 149,759 & 8.0\end{array}$
$\begin{array}{lllllll}\begin{array}{l}\text { Total } \\ \text { capital }\end{array} & 14.0 & 162,892 & 10.0 & 15.2 & 154,233 & 10.0\end{array}$


December 31, 2016
Common
$\begin{array}{llllllll}\text { equity } & 12.7 \% & \$ 149,755 & 6.5 & \% & 14.3 \% & \$ 149,755 & 6.5\end{array}$
tier 1
capital
Tier 1
capital
$\begin{array}{llllll}12.7 & 149,755 & 8.0 & 14.3 & 149,755 & 8.0\end{array}$
Total
$\begin{array}{lllllll}\text { capital } & 13.9 & 163,471 & 10.0 & 14.8 & 154,697 & 10.0\end{array}$
Tier 1
leverage $\begin{array}{llllll} & 9.3 & 149,755 & 5.0 & 9.3 & 149,755\end{array} 5.0$
${ }^{(1)}$ Percent required to meet guidelines to be considered "well capitalized" under the PCA framework.
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## Regulatory Developments

Minimum Total Loss-Absorbing Capacity
The Federal Reserve has established a final rule effective January 1, 2019, which includes minimum external total loss-absorbing capacity (TLAC) requirements to improve the resolvability and resiliency of large, interconnected BHCs. We estimate our minimum required external TLAC would be the greater of 22.5 percent of risk-weighted assets or 9.5 percent of SLR leverage exposure. In addition, U.S. G-SIBs must meet a minimum long-term debt requirement. Our minimum required long-term debt is estimated to be the greater of 8.5 percent of risk-weighted assets or 4.5 percent of SLR leverage exposure. The impact of the TLAC rule is not expected to be material to our results of operations.
Revisions to Approaches for Measuring Risk-weighted Assets
The Basel Committee has several open proposals to revise key methodologies for measuring risk-weighted assets. The proposals include a standardized approach for credit risk, standardized approach for operational risk, revisions to the credit valuation adjustment (CVA) risk framework and constraints on the use of internal models. The Basel Committee has also finalized a revised standardized model for counterparty credit risk, revisions to the securitization framework and its fundamental review of the trading book, which updates both modeled and standardized approaches for market risk measurement. These revisions are to be coupled with a proposed capital floor framework to limit the extent to which banks can reduce risk-weighted asset levels through the use of internal models, both at the input parameter and aggregate risk-weighted asset level. After the outstanding proposals are finalized by the Basel Committee, U.S. banking regulators may update the U.S. Basel 3 rules to incorporate the Basel Committee revisions. Revisions to the G-SIB Assessment Framework
On March 30, 2017, the Basel Committee issued a consultative document with proposed revisions to the G-SIB surcharge assessment framework. The proposed revisions would include removing the cap on the substitutability category, expanding the scope of consolidation to include insurance subsidiaries in three categories (size, interconnectedness and complexity) and modifying the substitutability category weights with the
introduction of a new trading volume indicator. The Basel Committee has also requested feedback on a new short-term wholesale funding indicator, which would be included in the interconnectedness category. The U.S. banking regulators may update the U.S. G-SIB surcharge rule to incorporate the Basel Committee revisions. For more information on our Regulatory Developments see Capital Management - Regulatory Developments in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
Broker-dealer Regulatory Capital and Securities Regulation
The Corporation's principal U.S. broker-dealer subsidiaries are Merrill Lynch, Pierce, Fenner \& Smith Incorporated (MLPF\&S) and Merrill Lynch Professional Clearing Corp (MLPCC). MLPCC is a fully-guaranteed subsidiary of MLPF\&S and provides clearing and settlement services. Both entities are subject to the net capital requirements of Securities and Exchange Commission (SEC) Rule 15c3-1. Both entities are also registered as futures commission merchants and are subject to the Commodity Futures Trading Commission Regulation 1.17.
MLPF\&S has elected to compute the minimum capital requirement in accordance with the Alternative Net Capital Requirement as permitted by SEC Rule 15c3-1. At June 30, 2017, MLPF\&S's regulatory net capital as defined by Rule $15 \mathrm{c} 3-1$ was $\$ 12.3$ billion and exceeded the minimum requirement of $\$ 1.7$ billion by $\$ 10.6$ billion. MLPCC's net capital of $\$ 3.5$ billion exceeded the minimum requirement of $\$ 640$ million by $\$ 2.9$ billion.
In accordance with the Alternative Net Capital Requirements, MLPF\&S is required to maintain tentative net capital in excess of $\$ 1.0$ billion, net capital in excess of $\$ 500$ million and notify the SEC in the event its tentative net capital is less than $\$ 5.0$ billion. At June 30, 2017, MLPF\&S had tentative net capital and net capital in excess of the minimum and notification requirements.
Merrill Lynch International (MLI), a U.K. investment firm, is regulated by the Prudential Regulation Authority and the Financial Conduct Authority, and is subject to certain regulatory capital requirements. At June 30, 2017, MLI's capital resources were $\$ 35.4$ billion which exceeded the minimum requirement of $\$ 14.6$ billion.

Common and Preferred Stock Dividends
Table 16 is a summary of our cash dividend declarations on preferred stock during the second quarter of 2017 and through July 31, 2017. During the second quarter of 2017, we declared
$\$ 361$ million of cash dividends on preferred stock. For more information on preferred stock and a summary of our declared quarterly cash dividends on common stock, see Note 11 - Shareholders' Equity to the Consolidated Financial Statements.

Table 16 Preferred Stock Cash Dividend Summary
June 30, 2017
Outstanding

| Preferred | Notional |
| :--- | :--- |
| Stock | Amount <br> (in millions) |

Series B ${ }^{(1)} \$ 1$
Series $D^{(2)} \$ 654$

Series E ${ }^{(2)} \$ 317$

| Series F | $\$ 141$ |
| :--- | :--- | :--- |
| Series G | $\$ 493$ |

Series I ${ }^{(2)} \$ 365$
$\underset{(3,4)}{\text { Series K } \quad \$ 1,544}$

| Series L | $\$ 3,080$ | June 16, 2017 | July 1, 2017 |
| :--- | :--- | :--- | :--- |
| Series M <br> $(3,4)$ | $\$ 1,310$ | April 14, 2017 | April 30, 2017 |
| Series T | $\$ 5,000$ | July 26, 2017 | September 25, 2017 |
|  |  | April 26, 2017 | June 25, 2017 |
|  | $\$ 1,000$ | April 14, 2017 | May 15, 2017 |


| Payment Date | Per Annum Dividend Rate |  | Dividend Per Share |
| :---: | :---: | :---: | :---: |
| October <br> 25, 2017 | 7.00 | \% | \$ 1.75 |
| $\begin{aligned} & \text { July } 25, \\ & 2017 \end{aligned}$ | 7.00 |  | 1.75 |
| September <br> 14, 2017 | 6.204 | \% | \$ 0.38775 |
| $\begin{aligned} & \text { June 14, } \\ & 2017 \end{aligned}$ | 6.204 |  | 0.38775 |
| $\begin{aligned} & \text { August } \\ & 15,2017 \end{aligned}$ | Floating |  | \$ 0.25556 |
| $\begin{aligned} & \text { May } 15, \\ & 2017 \end{aligned}$ | Floating |  | 0.24722 |
| September $15,2017$ | Floating |  | \$ 1,022.22222 |
| $\begin{aligned} & \text { June 15, } \\ & 2017 \end{aligned}$ | Floating |  | 1,022.22222 |
| September $15,2017$ | Adjustable |  | \$ 1,022.22222 |
| $\begin{aligned} & \text { June 15, } \\ & 2017 \end{aligned}$ | Adjustable |  | 1,022.22222 |
| $\begin{aligned} & \text { October 2, } \\ & 2017 \end{aligned}$ | 6.625 | \% | \$ 0.4140625 |
| $\begin{aligned} & \text { July 3, } \\ & 2017 \end{aligned}$ | 6.625 |  | 0.4140625 |
| $\begin{aligned} & \text { July 31, } \\ & 2017 \end{aligned}$ | Fixed-to-floating |  | \$ 40.00 |
| $\begin{aligned} & \text { July } 31, \\ & 2017 \end{aligned}$ | 7.25 | \% | \$ 18.125 |
| May 15, $2017$ | Fixed-to-floating |  | \$ 40.625 |
| $\begin{aligned} & \text { October } \\ & 10,2017 \end{aligned}$ | 6.00 | \% | \$ 1,500.00 |
| $\begin{aligned} & \text { July } 10 \text {, } \\ & 2017 \end{aligned}$ | 6.00 |  | 1,500.00 |
|  | Fixed-to-floating |  | \$ 26.00 |

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| $\underset{(3,4)}{\text { Series U }}$ |  |  |  |  | $\begin{aligned} & \text { June 1, } \\ & 2017 \end{aligned}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Series V <br> $(3,4)$ |  | 1,500 | April 14, 2017 | June 1, 2017 | $\begin{aligned} & \text { June 19, } \\ & 2017 \end{aligned}$ | Fixed-to-floating |  | \$ 25.625 |
| $\begin{aligned} & \text { Series W } \\ & \text { (2) } \end{aligned}$ | \$ | 1,100 | July 5, 2017 | August 15, 2017 | September $\text { 11, } 2017$ | 6.625 | \% | \$ 0.4140625 |
|  |  |  | April 14, 2017 | May 15, 2017 | $\begin{aligned} & \text { June 9, } \\ & 2017 \end{aligned}$ | 6.625 |  | 0.4140625 |
| $\underset{(3,4)}{\text { Series X }}$ |  | 2,000 | July 5, 2017 | August 15, 2017 | September <br> 5, 2017 | Fixed-to-floating |  | \$ 31.25 |
| Series Y <br> (2) | \$ | 1,100 | June 16, 2017 | July 1, 2017 | $\begin{aligned} & \text { July 27, } \\ & 2017 \end{aligned}$ | 6.50 | \% | \$ 0.40625 |
| $\underset{(3,4)}{\text { Series AA }}$ | \$ | 1,900 | July 5, 2017 | September 1, 2017 | September $18,2017$ | Fixed-to-floating |  | \$ 30.50 |
| Series $\mathrm{CC}^{(2)}$ | \$ | 1,100 | June 16, 2017 | July 1, 2017 | $\begin{aligned} & \text { July } 31, \\ & 2017 \end{aligned}$ | 6.20 | \% | \$ 0.3875 |
| $\underset{(3,4)}{\text { Series DD }}$ |  | 1,000 | July 5, 2017 | August 15, 2017 | September $\text { 11, } 2017$ | Fixed-to-floating |  | \$ 31.50 |
| Series EE <br> (2) | \$ | 900 | June 16, 2017 | July 1, 2017 | $\begin{aligned} & \text { July } 25, \\ & 2017 \end{aligned}$ | 6.00 | \% | \$ 0.375 |
| Series $1^{(5)}$ \$ |  |  | July 5, 2017 | August 15, 2017 | $\begin{aligned} & \text { August } \\ & 29,2017 \end{aligned}$ | Floating |  | \$ 0.18750 |
|  |  |  | April 14, 2017 | May 15, 2017 | $\begin{aligned} & \text { May } 30, \\ & 2017 \end{aligned}$ | Floating |  | 0.18750 |
| Series $2{ }^{(5)}$ \$ | \$ 299 |  | July 5, 2017 | August 15, 2017 | August <br> 29, 2017 | Floating |  | \$ 0.19167 |
|  |  |  | April 14, 2017 | May 15, 2017 | $\begin{aligned} & \text { May } 30 \text {, } \\ & 2017 \end{aligned}$ | Floating |  | 0.18542 |
| Series $3{ }^{(5)} \$$ | 653 |  | July 5, 2017 | August 15, 2017 | August <br> 28, 2017 | 6.375 | \% | \$ 0.3984375 |
|  |  |  | April 14, 2017 | May 15, 2017 | $\begin{aligned} & \text { May 30, } \\ & 2017 \end{aligned}$ | 6.375 |  | 0.3984375 |
| Series $4{ }^{(5)}$ \$ | 210 |  | July 5, 2017 | August 15, 2017 | August <br> 29, 2017 | Floating |  | \$ 0.25556 |
|  |  |  | April 14, 2017 | May 15, 2017 | $\begin{aligned} & \text { May 30, } \\ & 2017 \end{aligned}$ | Floating |  | 0.24722 |
| Series $5{ }^{(5)}$ \$ | \$ 422 |  | July 5, 2017 | August 1, 2017 | August <br> 21, 2017 | Floating |  | \$ 0.25556 |
|  |  |  | April 14, 2017 | May 1, 2017 | $\begin{aligned} & \text { May 22, } \\ & 2017 \end{aligned}$ | Floating |  | 0.24722 |
| ${ }^{(1)}$ Dividends are cumulative. |  |  |  |  |  |  |  |  |
| ${ }^{(2)}$ Dividends per depositary share, each representing a $1 / 1,000^{\text {th }}$ interest in a share of preferred stock. <br> ${ }^{(3)}$ Initially pays dividends semi-annually. |  |  |  |  |  |  |  |  |

[^7]
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## Liquidity Risk

Funding and Liquidity Risk Management
Our primary liquidity risk management objective is to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers under a range of economic conditions. To achieve that objective, we analyze and monitor our liquidity risk under expected and stressed conditions, maintain liquidity and access to diverse funding sources, including our stable deposit base, and seek to align liquidity-related incentives and risks.
We define liquidity as readily available assets, limited to cash and high-quality, liquid, unencumbered securities that we can use to meet our contractual and contingent financial obligations as those obligations arise. We manage our liquidity position through line of business and ALM activities, as well as through our legal entity funding strategy, on both a forward and current (including intraday) basis under both expected and stressed conditions. We believe that a centralized approach to funding and liquidity management enhances our ability to monitor liquidity requirements, maximizes access to funding sources, minimizes borrowing costs and facilitates timely responses to liquidity events. For more information regarding global funding and liquidity risk management, see Liquidity Risk - Time-to-required Funding and Stress Modeling in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
NB Holdings, Inc.
In the third quarter of 2016, we entered into intercompany arrangements with certain key subsidiaries under which we transferred certain of our parent company assets, and agreed to transfer certain additional parent company assets not needed to satisfy anticipated near-term expenditures, to NB Holdings, Inc., a wholly-owned holding company subsidiary (NB Holdings). The parent company is expected to continue to have access to the same flow of dividends, interest and other amounts of cash necessary to service its debt, pay dividends and perform other obligations as it would have had if it had not entered into these arrangements and transferred any assets.
In consideration for the transfer of assets, NB Holdings issued a subordinated note to the parent company in a principal amount equal to the value of the transferred assets. The aggregate principal amount of the note will increase by the amount of any future asset transfers. NB Holdings also provided the parent company with a committed line of credit that allows the parent company to draw funds necessary to service near-term cash needs. These arrangements support our preferred single point of entry resolution strategy, under which only the parent company would be resolved under the U.S Bankruptcy Code. These arrangements include provisions to terminate the line of credit, forgive the subordinated note and require the parent company to transfer its remaining financial assets to NB Holdings if our projected liquidity resources deteriorate so severely that resolution of the parent company becomes imminent. Global Liquidity Sources and Other Unencumbered Assets
We maintain liquidity available to the Corporation, including the parent company and selected subsidiaries, in the form of cash and high-quality, liquid, unencumbered securities. Our liquidity buffer, referred to as Global Liquidity Sources (GLS), is comprised of assets that are readily available to the parent company and selected subsidiaries, including holding company, bank and broker-
dealer subsidiaries, even during stressed market conditions. Our cash is primarily on deposit with the Federal Reserve and, to a lesser extent, central banks outside of the U.S. We limit the composition of high-quality, liquid, unencumbered securities to U.S. government securities, U.S. agency securities, U.S. agency MBS and a select group of non-U.S. government securities. We can quickly obtain cash for these securities, even in stressed conditions, through repurchase agreements or outright sales. We hold our GLS in legal entities that allow us to meet the liquidity requirements of our global businesses, and we consider the impact of potential regulatory, tax, legal and other restrictions that could limit the transferability of funds among entities.
Our GLS are substantially the same in composition to what qualifies as High Quality Liquid Assets (HQLA) under the final U.S. Liquidity Coverage Ratio (LCR) rules. However, HQLA for purposes of calculating LCR is not reported at market value, but at a lower value which incorporates regulatory deductions and the exclusion of excess liquidity held at certain subsidiaries. Our average consolidated HQLA, on a net basis, was $\$ 425$ billion for the three months ended June 30, 2017. For more information on the final LCR rules, see Liquidity Risk - Basel 3 Liquidity Standards on page 36.

Our GLS were $\$ 514$ billion and $\$ 499$ billion at June 30, 2017 and December 31, 2016 and were as shown in Table 17.

Table 17 Global Liquidity
Sources


As shown in Table 17, parent company and NB Holdings liquidity totaled $\$ 86$ billion and $\$ 76$ billion at June 30, 2017 and December 31, 2016. The increase in parent company and NB Holdings liquidity was primarily due to debt issuance outpacing maturities. Typically, parent company and NB Holdings liquidity is in the form of cash deposited with BANA.
Liquidity held at our bank subsidiaries totaled \$376 billion and \$372 billion at June 30, 2017 and December 31, 2016. The increase in bank subsidiaries' liquidity was primarily due to net debt issuances. Liquidity at bank subsidiaries excludes the cash deposited by the parent company and NB Holdings. Our bank subsidiaries can also generate incremental liquidity by pledging a range of unencumbered loans and securities to certain Federal Home Loan Banks (FHLBs) and the Federal Reserve Discount Window. The cash we could have obtained by borrowing against this pool of specifically-identified eligible assets was $\$ 290$ billion and $\$ 310$ billion at June 30, 2017 and December 31, 2016 with the decrease due to FHLB borrowings, which reduced available borrowing capacity, and adjustments to our valuation model. We have established operational procedures to enable us to borrow against these assets, including regularly monitoring our total pool of eligible loans and securities collateral. Eligibility is defined in guidelines from the FHLBs and the Federal Reserve and is subject to change at their discretion. Due to regulatory restrictions, liquidity

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generated by the bank subsidiaries can generally be used only to fund obligations within the bank subsidiaries and transfers to the parent company or nonbank subsidiaries may be subject to prior regulatory approval.
Liquidity held at our other regulated entities, comprised primarily of broker-dealer subsidiaries, totaled $\$ 52$ billion and $\$ 51$ billion at June 30, 2017 and December 31, 2016. Our other regulated entities also held unencumbered investment-grade securities and equities that we believe could be used to generate additional liquidity. Liquidity held in an other regulated entity is primarily available to meet the obligations of that entity and transfers to the parent company or to any other subsidiary may be subject to prior regulatory approval due to regulatory restrictions and minimum requirements.
Table 18 presents the composition of GLS at June 30, 2017 and December 31, 2016.
Global Liquidity
Table 18 Sources
Composition
(Dollars
in June 3December 31
billions) 20172016
Cash on $\$ 116$ \$ 106
deposit
U.S.

Treasury 6358
securities
U.S.
agency
$\begin{array}{ll}\text { securities } & 324 \\ 318\end{array}$
and
mortgage-backed
securities
Non-U.S.
governmentll 17
securities
Total
Global
Liquidity $\$ 514 \$ 499$
Liquidity

## Sources

Time-to-required Funding and Liquidity Stress Analysis
We use a variety of metrics to determine the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. One metric we use to evaluate the appropriate level of liquidity at the parent company and NB Holdings is "time-to-required funding (TTF)." This debt coverage measure indicates the number of months the parent company can continue to meet its unsecured contractual obligations as they come due using only the parent company and NB Holdings' liquidity sources without issuing any new debt or accessing any additional liquidity sources. We define unsecured contractual obligations for purposes of this metric as maturities of senior or subordinated debt issued or guaranteed by Bank of America Corporation. These include certain unsecured debt instruments, primarily structured liabilities, which we may be required to settle for cash prior to maturity. TTF was 49 months at June 30, 2017 compared to 35 months at December 31, 2016. The increase in TTF was driven by debt issuances outpacing maturities.
We also utilize liquidity stress analysis to assist us in determining the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. The liquidity stress testing process is an integral part of analyzing our potential contractual and contingent cash outflows. We evaluate the liquidity requirements under a range of scenarios with varying levels of severity and time horizons. The scenarios we consider and utilize incorporate market-wide and

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Corporation-specific events, including potential credit rating downgrades for the parent company and our subsidiaries, and more severe events including potential resolution scenarios. The scenarios are based on our historical experience, experience of distressed and failed financial institutions, regulatory guidance, and both expected and unexpected future events.
The types of potential contractual and contingent cash outflows we consider in our scenarios may include, but are not limited to,
upcoming contractual maturities of unsecured debt and reductions in new debt issuance; diminished access to secured financing markets; potential deposit withdrawals; increased draws on loan commitments, liquidity facilities and letters of credit; additional collateral that counterparties could call if our credit ratings were downgraded; collateral and margin requirements arising from market value changes; and potential liquidity required to maintain businesses and finance customer activities. Changes in certain market factors, including, but not limited to, credit rating downgrades, could negatively impact potential contractual and contingent outflows and the related financial instruments, and in some cases these impacts could be material to our financial results.
We consider all sources of funds that we could access during each stress scenario and focus particularly on matching available sources with corresponding liquidity requirements by legal entity. We also use the stress modeling results to manage our asset and liability profile and establish limits and guidelines on certain funding sources and businesses.
Basel 3 Liquidity Standards
Basel 3 has two liquidity risk-related standards: the LCR and the Net Stable Funding Ratio (NSFR).
The LCR is calculated as the amount of a financial institution's unencumbered HQLA relative to the estimated net cash outflows the institution could encounter over a 30 -day period of significant liquidity stress, expressed as a percentage. As of June 30, 2017, the consolidated Corporation and its insured depository institutions were above the 2017 LCR requirements. Our LCR may fluctuate from period to period due to normal business flows from customer activity. Beginning with the second quarter 2017 results, we are required to disclose publicly, on a quarterly basis, quantitative information about our LCR calculation and a discussion of the factors that have a significant effect on our LCR. This information will be available on our Investor Relations website on a quarterly basis beginning in August 2017. U.S. banking regulators have issued a proposal for an NSFR requirement applicable to U.S. financial institutions following the Basel Committee's final standard. The U.S. NSFR would apply to the Corporation on a consolidated basis and to our insured depository institutions beginning on January 1, 2018, if finalized as proposed. We expect to meet the NSFR requirement within the regulatory timeline. The standard is intended to reduce funding risk over a longer time horizon. The NSFR is designed to ensure an appropriate amount of stable funding, generally capital and liabilities maturing beyond one year, given the mix of assets and off-balance sheet items.
Diversified Funding Sources
We fund our assets primarily with a mix of deposits and secured and unsecured liabilities through a centralized, globally coordinated funding approach diversified across products, programs, markets, currencies and investor groups. The primary benefits of our centralized funding approach include greater control, reduced funding costs, wider name recognition by investors and greater flexibility to meet the variable funding requirements of subsidiaries. Where regulations, time zone differences or other business considerations make parent company funding impractical, certain other subsidiaries may issue their own debt.
We fund a substantial portion of our lending activities through our deposits, which were $\$ 1.26$ trillion at both June 30, 2017 and

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December 31, 2016. Deposits are primarily generated by our Consumer Banking, GWIM and Global Banking segments. These deposits are diversified by clients, product type and geography, and the majority of our U.S. deposits are insured by the FDIC. We consider a substantial portion of our deposits to be a stable, low-cost and consistent source of funding. We believe this deposit funding is generally less sensitive to interest rate changes, market volatility or changes in our credit ratings than wholesale funding sources. Our lending activities may also be financed through secured borrowings, including credit card securitizations and securitizations with GSEs, the FHA and private-label investors, as well as FHLB loans.
Our trading activities in other regulated entities are primarily funded on a secured basis through securities lending and repurchase agreements and these amounts will vary based on customer activity and market conditions. We believe funding these activities in the secured financing markets is more cost-efficient and less sensitive to changes in our credit ratings than unsecured financing. Repurchase agreements are generally short-term and often overnight. Disruptions in secured financing markets for financial institutions have occurred in prior market cycles which resulted in adverse changes in terms or significant reductions in the availability of such financing. We manage the liquidity risks arising from secured funding by sourcing funding globally from a diverse group of counterparties, providing a range of securities
collateral and pursuing longer durations, when appropriate. For more information on secured financing agreements, see Note 9 - Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings to the Consolidated Financial Statements.
We issue long-term unsecured debt in a variety of maturities and currencies to achieve cost-efficient funding and to maintain an appropriate maturity profile. While the cost and availability of unsecured funding may be negatively impacted by general market conditions or by matters specific to the financial services industry or the Corporation, we seek to mitigate refinancing risk by actively managing the amount of our borrowings that we anticipate will mature within any month or quarter.
During the three and six months ended June 30, 2017, we issued $\$ 16.0$ billion and $\$ 33.4$ billion of long-term debt consisting of $\$ 10.6$ billion and $\$ 23.5$ billion for Bank of America Corporation, substantially all of which was TLAC compliant, $\$ 3.0$ billion and $\$ 5.1$ billion for Bank of America, N.A. and $\$ 2.4$ billion and $\$ 4.8$ billion of other debt. Table 19 presents the carrying value of aggregate annual contractual maturities of long-term debt as of June $30,2017$. During the six months ended June 30, 2017, we had total long-term debt maturities and purchases of $\$ 29.4$ billion consisting of $\$ 12.3$ billion for Bank of America Corporation, $\$ 11.8$ billion for Bank of America, N.A. and $\$ 5.3$ billion of other debt.

Table 19 Long-term Debt by Maturity

| (Dollars in millions) | Remainder of 2017 | 2018 | 2019 | 2020 | 2021 | Thereafter | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bank of America Corporation |  |  |  |  |  |  |  |
| Senior notes | \$ 13,253 | \$19,690 | \$18,098 | \$ 12,359 | \$10,617 | \$ 67,183 | \$ 141,200 |
| Senior structured notes | 1,878 | 3,011 | 1,422 | 995 | 423 | 8,498 | 16,227 |
| Subordinated notes | - | 2,803 | 1,502 | - | 362 | 21,353 | 26,020 |
| Junior subordinated notes | - | - | - | - | - | 3,834 | 3,834 |
| Total Bank of America Corporation | 15,131 | 25,504 | 21,022 | 13,354 | 11,402 | 100,868 | 187,281 |
| Bank of America, N.A. |  |  |  |  |  |  |  |
| Senior notes | - | 5,717 | - | - | - | 20 | 5,737 |
| Subordinated notes | - | - | 1 | - | - | 1,694 | 1,695 |
| Advances from Federal Home Loan Banks | 8 | 1,509 | 1,513 | 11 | 2 | 114 | 3,157 |
| Securitizations and other Bank VIEs <br> (1) | 1,500 | 2,300 | 3,199 | 1,998 | - | 43 | 9,040 |
| Other | 9 | 126 | 113 | 10 | - | 150 | 408 |

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| Total Bank of America, N.A. | 1,517 | 9,652 | 4,826 | 2,019 | 2 | 2,021 | 20,037 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Other debt |  |  |  |  |  |  | 1 |
| Senior notes | 1 | - | - | - | - | - | 1 |
| Structured liabilities | 699 | 3,618 | 1,761 | 1,321 | 846 | 7,603 | 15,848 |
| Nonbank VIEs ${ }^{(1)}$ | - | 22 | 4 | - | - | 686 | 725 |
| Other | 713 | - | - | - | - | 31 | 31 |
| Total other debt | $\$ 17,361$ | $\$ 38,796$ | 1,765 | 1,321 | 846 | 8,320 | 16,605 |
| Total long-term debt | $\$ 27,613$ | $\$ 16,694$ | $\$ 12,250$ | $\$ 111,209$ | $\$ 223,923$ |  |  |

[^8]Table 20 presents our long-term debt by major currency at June 30, 2017 and December 31, 2016.
Table 20 Long-term Debt by
Major Currency

| (Dollars | June 30 | December 31 |
| :--- | :--- | :--- |
| in | 2017 | 2016 |
| millions) |  |  |
| U.S. | $\$ 173,017$ | $\$ 172,082$ |
| Dollar |  |  |
| Euro | 34,959 | 28,236 |
| British <br> Pound | 6,797 | 6,588 |
| Australian <br> Dollar | 2,942 | 2,900 |
| Japanese <br> Yen | 2,911 | 3,919 |
| Canadian | 1,548 | 1,049 |
| Dollar <br> Other | 1,749 | 2,049 |
| Total <br> long-term <br> debt | 223,923 | $\$ 216,823$ |

Total long-term debt increased $\$ 7.1$ billion, or three percent, in the six months ended June 30, 2017, primarily due to issuances outpacing maturities. We may, from time to time, purchase outstanding debt instruments in various transactions, depending on prevailing market conditions, liquidity and other factors. In addition, our other regulated entities may make markets in our debt instruments to provide liquidity for investors. For information on long-term debt funding, see Note 11 - Long-term Debt to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K and for information regarding funding and liquidity risk management, see Liquidity Risk - Time-to-required Funding and Stress Modeling in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
We use derivative transactions to manage the duration, interest rate and currency risks of our borrowings, considering the characteristics of the assets they are funding. For more information on our ALM activities, see Interest Rate Risk Management for the Banking Book on page 63.
We may also issue unsecured debt in the form of structured notes for client purposes, certain of which qualify as TLAC eligible debt. During the three and six months ended June 30, 2017, we issued $\$ 1.3$ billion and $\$ 2.3$ billion of structured notes, which are debt obligations that pay investors returns linked to other debt or equity securities, indices, currencies or commodities. We typically hedge the returns we are obligated to pay on these liabilities with derivatives and/or investments in the underlying instruments, so that from a funding perspective, the cost is similar to our other unsecured long-term debt. We could be required to settle certain structured note obligations for cash or other securities prior to maturity under certain circumstances, which we consider for liquidity planning purposes. We believe, however, that a portion of
such borrowings will remain outstanding beyond the earliest put or redemption date.
Substantially all of our senior and subordinated debt obligations contain no provisions that could trigger a requirement for an early repayment, require additional collateral support, result in changes to terms, accelerate maturity or create additional financial obligations upon an adverse change in our credit ratings, financial ratios, earnings, cash flows or stock price.
Contingency Planning

We maintain contingency funding plans that outline our potential responses to liquidity stress events at various levels of severity. These policies and plans are based on stress scenarios and include potential funding strategies and communication and notification procedures that we would implement in the event we experienced stressed liquidity conditions. We periodically review and test the contingency funding plans to validate efficacy and assess readiness. Our U.S. bank subsidiaries can access contingency funding through the Federal Reserve Discount Window. Certain non-U.S. subsidiaries have access to central bank facilities in the jurisdictions in which they operate. While we do not rely on these sources in our liquidity modeling, we maintain the policies, procedures and governance processes that would enable us to access these sources if necessary.

## Credit Ratings

Credit ratings and outlooks are opinions expressed by rating agencies on our creditworthiness and that of our obligations or securities, including long-term debt, short-term borrowings, preferred stock and other securities, including asset securitizations. Table 21 presents the Corporation's current long-term/short-term senior debt ratings and outlooks expressed by the rating agencies. These ratings have not changed from those disclosed in the Corporation's 2016 Annual Report on Form 10-K. For more information on credit ratings, see Liquidity Risk - Credit Ratings in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
For more information on the additional collateral and termination payments that could be required in connection with certain over-the-counter (OTC) derivative contracts and other trading agreements as a result of such a credit rating downgrade, see Note 2 - Derivatives to the Consolidated Financial Statements herein and Item 1A. Risk factors of the Corporation's 2016 Annual Report on Form 10-K.

Table 21 Senior Debt Ratings
Moody's Investors Service
Standard \& Poor's Global Ratings

Fitch Ratings
Long-term Short-term Outlook Long-term Short-term Outlook Long-term Short-term Outlook
Bank of
$\begin{array}{llllll}\text { America Baa1 P-2 } & \text { Positive BBB+ } & \text { A-2 } & \text { Stable A }\end{array}$
Corporation
Bank of
$\begin{array}{llllllll}\text { America, A1 } & \text { P-1 } & \text { Positive A+ } & \text { A } 1 & \text { Stable A+ }\end{array}$
N.A.

Merrill
Lynch,
Pierce,


Smith
Incorporated
Merrill
$\begin{array}{llllllllll}\text { Lynch } & \text { NR } & \text { NR } & \text { NR } & \text { A+ } & \text { A-1 } & \text { Stable A } & \text { F1 } & \text { Stable }\end{array}$
International
$\mathrm{NR}=$ not rated

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## Credit Risk Management

For more information on our credit risk management activities, see Consumer Portfolio Credit Risk Management below, Commercial Portfolio Credit Risk Management on page 48, Non-U.S. Portfolio on page 56, Provision for Credit Losses on page 57, Allowance for Credit Losses on page 57, and Note 4 - Outstanding Loans and Leases and Note 5 - Allowance for Credit Losses to the Consolidated Financial Statements.
Consumer Portfolio Credit Risk Management
Credit risk management for the consumer portfolio begins with initial underwriting and continues throughout a borrower's credit cycle. Statistical techniques in conjunction with experiential judgment are used in all aspects of portfolio management including underwriting, product pricing, risk appetite, setting credit limits, and establishing operating processes and metrics to quantify and balance risks and returns. Statistical models are built using detailed behavioral information from external sources such as credit bureaus and/or internal historical experience. These models are a component of our consumer credit risk management process and are used in part to assist in making both new and ongoing credit decisions, as well as portfolio management strategies, including authorizations and line management, collection practices and strategies, and determination of the allowance for loan and lease losses and allocated capital for credit risk.
Consumer Credit Portfolio
Improvement in the U.S. unemployment rate and home prices continued during the three and six months ended June 30, 2017
resulting in improved credit quality and lower credit losses in the consumer real estate portfolio compared to the same periods in 2016. The 30 and 90 days or more past due balances declined across most consumer loan portfolios during the six months ended June 30, 2017 as a result of improved delinquency trends.
The sale of the non-U.S. consumer credit card business, improved credit quality, continued loan balance run-off and sales in the consumer real estate portfolio drove a $\$ 527$ million decrease in the consumer allowance for loan and lease losses during the six months ended June 30, 2017 to $\$ 5.7$ billion at June 30, 2017. For additional information, see Allowance for Credit Losses on page 57.
For more information on our accounting policies regarding delinquencies, nonperforming status, charge-offs and troubled debt restructurings (TDRs) for the consumer portfolio, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Table 22 presents our outstanding consumer loans and leases, and the PCI loan portfolio. In addition to being included in the "Outstandings" columns in Table 22, PCI loans are also shown separately in the "Purchased Credit-impaired Loan Portfolio" columns. The impact of the PCI loan portfolio on certain credit statistics is reported where appropriate. For more information on PCI loans, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45 and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

Table 22 Consumer Loans and Leases
(Dollars in millions)
Residential mortgage ${ }^{(1)}$
Home equity
U.S. credit card

Non-U.S. credit card Direct/Indirect consumer ${ }^{(2)}$
Other consumer ${ }^{(3)}$
Consumer loans excluding loans
accounted for under the fair value

| Outstandings | Purchased <br> Credit-impaired Loan <br> Portfolio |  |  |
| :--- | :--- | :--- | :--- |
| June 30 | December 31 | June 30 |  |
| 2017 | 2016 | 2017 | December 31 |
| \$197,446 | $\$ 191,797$ | $\$ 9,274$ | $\$ 10,127$ |
| 61,942 | 66,443 | 3,170 | 3,611 |
| 90,776 | 92,278 | n/a | n/a |
| - | 9,214 | n/a | n/a |
| 93,493 | 94,089 | n/a | n/a |
| 2,658 | 2,499 | n/a | n/a |
| 446,315 | 456,320 | 12,444 | 13,738 |

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option
Loans accounted for under the fair
value option ${ }^{(4)}$
Total consumer loans and leases ${ }^{(5)}$

1,035 1,051
\$447,350 \$ 457,371
$\mathrm{n} / \mathrm{a} \quad \mathrm{n} / \mathrm{a}$
\$12,444 \$ 13,738
${ }_{\text {(1) }}$ Outstandings includes pay option loans of $\$ 1.6$ billion and $\$ 1.8$ billion at June 30, 2017 and December 31, 2016. We no longer originate pay option loans.
Outstandings include auto and specialty lending loans of $\$ 49.1$ billion and $\$ 48.9$ billion, unsecured consumer
(2) lending loans of $\$ 509$ million and $\$ 585$ million, U.S. securities-based lending loans of $\$ 39.8$ billion and $\$ 40.1$ billion, non-U.S. consumer loans of $\$ 2.9$ billion and $\$ 3.0$ billion, student loans of $\$ 463$ million and $\$ 497$ million and other consumer loans of $\$ 657$ million and $\$ 1.1$ billion at June 30, 2017 and December 31, 2016. Outstandings include consumer finance loans of $\$ 420$ million and $\$ 465$ million, consumer leases of $\$ 2.1$ billion
${ }^{(3)}$ and $\$ 1.9$ billion and consumer overdrafts of $\$ 155$ million and $\$ 157$ million at June 30, 2017 and December 31, 2016.

Consumer loans accounted for under the fair value option include residential mortgage loans of $\$ 666$ million and
(4) $\$ 710$ million and home equity loans of $\$ 369$ million and $\$ 341$ million at June 30, 2017 and December 31, 2016. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.
Includes $\$ 9.2$ billion of non-U.S. credit card loans, which were included in assets of business held for sale on the
${ }^{(5)}$ Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
$\mathrm{n} / \mathrm{a}=$ not applicable

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Table 23 presents consumer nonperforming loans and accruing consumer loans past due 90 days or more. Nonperforming loans do not include past due consumer credit card loans, other unsecured loans and in general, consumer loans not secured by real estate (loans discharged in Chapter 7 bankruptcy are included) as these loans are typically charged off no later than the end of the month in which the loan becomes 180 days past due. Real estate-secured past due consumer loans that are insured by the FHA or individually insured under long-term standby agreements
with FNMA and FHLMC (collectively, the fully-insured loan portfolio) are reported as accruing as opposed to nonperforming since the principal repayment is insured. Fully-insured loans included in accruing past due 90 days or more are primarily from our repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA. Additionally, nonperforming loans and accruing balances past due 90 days or more do not include the PCI loan portfolio or loans accounted for under the fair value option even though the customer may be contractually past due.

Table 23 Consumer Credit Quality
(Dollars in millions)
Residential mortgage ${ }^{(1)}$
Home equity
U.S. credit card

Non-U.S. credit card Direct/Indirect consumer
Other consumer
Total ${ }^{(2)}$
Consumer loans and leases as a percentage of outstanding consumer loans and leases (2)
Consumer loans and leases as a percentage of outstanding loans and leases, excluding PCI and
fully-insured loan portfolios ${ }^{(2)}$
Residential mortgage loans accruing past due 90 days or more are fully-insured loans. At June 30, 2017 and
(1) December 31, 2016, residential mortgage included $\$ 2.4$ billion and $\$ 3.0$ billion of loans on which interest has been curtailed by the FHA, and therefore are no longer accruing interest, although principal is still insured, and $\$ 1.3$ billion and $\$ 1.8$ billion of loans on which interest was still accruing.
Balances exclude consumer loans accounted for under the fair value option. At June 30, 2017 and December 31,
${ }^{(2)} 2016, \$ 44$ million and $\$ 48$ million of loans accounted for under the fair value option were past due 90 days or more and not accruing interest.
$\mathrm{n} / \mathrm{a}=$ not applicable
Table 24 presents net charge-offs and related ratios for consumer loans and leases.

## Consumer Net

Table 24 Charge-offs and
Related Ratios

Net Charge-offs ${ }^{(1)}$
Three Six Months
Months Ended

Net Charge-off Ratios ${ }^{(1,2)}$
Three Months Six Months
Ended Ended

|  | Ended une 30 | June 30 |  | June 30 |  | June 30 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { (Dollars } \\ & \text { in } 2017 \\ & \text { millions) } \end{aligned}$ | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| $\begin{aligned} & \text { Residential } \\ & \text { mortgage } \end{aligned} \text { (19) }$ | \$34 | \$(2 | ) \$ 125 | (0.04)\% | 0.07\% | 0.00\% | 0.14\% |
| $\begin{aligned} & \text { Home } \\ & \text { equity } \end{aligned} 50$ | 126 | 114 | 238 | 0.32 | 0.70 | 0.36 | 0.65 |
| U.S. <br> credit 640 <br> card | 573 | 1,246 | 1,160 | 2.87 | 2.66 | 2.81 | 2.68 |
| Non-U.S. <br> credit 31 <br> card | 46 | 75 | 91 | 1.89 | 1.85 | 1.90 | 1.85 |
| Direct/Indirect consumer | 23 | 80 | 57 | 0.14 | 0.10 | 0.17 | 0.13 |
| Other consumer 17 | 47 | 65 | 95 | 2.64 | 8.40 | 5.08 | 8.73 |
| Total \$751 | \$849 | \$1,578 | \$ 1,766 | 0.67 | 0.76 | 0.71 | 0.79 |

${ }_{(1)}$ Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.
(2) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.
Net charge-offs, as shown in Tables 24 and 25, exclude write-offs in the PCI loan portfolio of $\$ 41$ million and $\$ 50$ million in residential mortgage for the three and six months ended June 30, 2017 compared to $\$ 37$ million and $\$ 76$ million for the same periods in 2016. Net charge-offs, as shown in Tables 24 and 25, exclude write-offs in the PCI loan portfolio of $\$ 14$ million and $\$ 38$ million in home equity for the three and six months ended June 30, 2017 compared to $\$ 45$ million and $\$ 111$ million for the same periods in 2016. Net charge-off ratios including the PCI write-offs
were 0.04 percent and 0.05 percent for residential mortgage for the three and six months ended June 30, 2017 compared to 0.15 percent and 0.22 percent for the same periods in 2016. Net charge-off ratios including the PCI write-offs were 0.41 percent and 0.48 percent for home equity for the three and six months ended June 30, 2017 compared to 0.95 percent for both periods in 2016. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.

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Table 25 presents outstandings, nonperforming balances, net charge-offs, allowance for loan and lease losses and provision for loan and lease losses for the core and non-core portfolios within the consumer real estate portfolio. We categorize consumer real estate loans as core and non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with our current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise underwriting guidelines, or otherwise met our underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010, loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a TDR prior to 2016
are generally characterized as non-core loans, and are principally run-off portfolios. Core loans as reported in Table 25 include loans held in the Consumer Banking and GWIM segments, as well as loans held for ALM activities in All Other. For more information on core and non-core loans, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.
As shown in Table 25, outstanding core consumer real estate loans increased $\$ 7.0$ billion during the six months ended June 30, 2017 driven by an increase of $\$ 9.7$ billion in residential mortgage, partially offset by a $\$ 2.7$ billion decrease in home equity. The increase in residential mortgage was due to a decision to retain a higher percentage of residential mortgage production in Consumer Banking and GWIM. The decrease in home equity was driven by paydowns outpacing new originations and draws on existing lines.

Table 25 Consumer Real Estate Portfolio ${ }^{(1)}$

\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline \multirow[t]{4}{*}{O

J} \& \multicolumn{2}{|l|}{Outstandings} \& \multicolumn{2}{|l|}{Nonperforming} \& \multicolumn{4}{|l|}{Net Charge-offs ${ }^{(2)}$} <br>

\hline \& \multirow[b]{3}{*}{June 30} \& \multirow[b]{3}{*}{December 31} \& \multirow[b]{3}{*}{June 30} \& \multirow[b]{3}{*}{December 31} \& \multicolumn{2}{|l|}{\multirow[t]{3}{*}{| Three Months |
| :--- |
| Ended |
| June 30 |}} \& \multicolumn{2}{|l|}{\multirow[t]{3}{*}{| Six Months |
| :--- |
| Ended |
| June 30 |}} <br>

\hline \& \& \& \& \& \& \& \& <br>
\hline \& \& \& \& \& \& \& \& <br>
\hline (Dollars \& 2017 \& 2016 \& 2017 \& 2016 \& \& \& \& <br>
\hline in \& \& \& \& \& 2017 \& 2016 \& 2017 \& 2016 <br>
\hline \multicolumn{9}{|l|}{millions)} <br>
\hline \multicolumn{9}{|l|}{Core portfolio} <br>

\hline Residenti mortgage \& $$
\text { ial } 166,209
$$ \& \$ 156,497 \& \$ 1,051 \& \$ 1,274 \& \$(2 \& ) \$7 \& \$2 \& \$(11 ) <br>

\hline Home equity \& 46,642 \& 49,373 \& 970 \& 969 \& 28 \& 28 \& 59 \& 46 <br>
\hline Total core portfolio \& 212,851 \& 205,870 \& 2,021 \& 2,243 \& 26 \& 35 \& 61 \& 35 <br>
\hline \multicolumn{9}{|l|}{Non-core portfolio} <br>
\hline Residentia mortgage \& ial \& 35,300 \& 1,528 \& 1,782 \& (17 \& ) 27 \& (4 \& ) 136 <br>
\hline Home equity \& 15,300 \& 17,070 \& 1,711 \& 1,949 \& 22 \& 98 \& 55 \& 192 <br>

\hline Total non-core portfolio \& $$
46,537
$$ \& 52,370 \& 3,239 \& 3,731 \& 5 \& 125 \& 51 \& 328 <br>

\hline Consumer real estate portfolio \& \& \& \& \& \& \& \& <br>
\hline
\end{tabular}

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$\left.\begin{array}{llllllll}\begin{array}{l}\text { Residential } \\ \text { mortgage }\end{array} 97,446 & 191,797 & 2,579 & 3,056 & (19 & ) & 34 & (2 \\ \hline \begin{array}{l}\text { Home } \\ \text { equity }\end{array} & 61,942 & 66,443 & 2,681 & 2,918 & 50 & 126 & 114 \\ \begin{array}{l}\text { Total } \\ \text { consumer } \\ \text { real estate } \\ \text { portfolio }\end{array} & 259,388 & \$ 258,240 & \$ 5,260 & \$ 5,974 & \$ 31 & \$ 160 & \$ 112\end{array}\right) \$ 363$

| Allowance for Loan <br> and Lease Losses | Provision for Loan <br> and Lease Losses |  |  |
| :--- | :--- | :--- | :--- |
|  |  | Three Months | Six Months |

Core
portfolio
Residential
mortgage
Home
equity
Total
core $730 \quad 812 \quad(8 \quad) 8 \quad(20)(45)$
portfolio
Non-core
portfolio
Residential
mortgage
Home
equity
$\$ 239 \quad \$ 252 \$(10) \$-\quad \$(11) \$(53)$

Total non-core $\quad 1,579 \quad 1,938 \quad(162)(13)(221)(110)$
portfolio
Consumer
real estate
portfolio
Residential
mortgage
Home
equity
Total
consumer
real estate
$\$ 2,309 \$ 2,750 \quad \$(170) \$(5) \$(241) \$(155)$
portfolio
Outstandings and nonperforming loans exclude loans accounted for under the fair value option. Consumer loans
(1) accounted for under the fair value option include residential mortgage loans of $\$ 666$ million and $\$ 710 \mathrm{~m}$
home equity loans of $\$ 369$ million and $\$ 341$ million at June 30,2017 and December 31, 2016. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.
${ }_{(2)}$ Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.

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We believe that the presentation of information adjusted to exclude the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option is more representative of the ongoing operations and credit quality of the business. As a result, in the following discussions of the
residential mortgage and home equity portfolios, we provide information that excludes the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option in certain credit quality statistics. We separately disclose information on the PCI loan portfolio on page 45.

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## Residential Mortgage

The residential mortgage portfolio makes up the largest percentage of our consumer loan portfolio at 44 percent of consumer loans and leases at June 30, 2017. Approximately 35 percent of the residential mortgage portfolio is in GWIM and represents residential mortgages originated for the home purchase and refinancing needs of our wealth management clients. Approximately 32 percent of the residential mortgage portfolio is in All Other and is comprised of originated loans, purchased loans used in our overall ALM activities, delinquent FHA loans repurchased pursuant to our servicing agreements with GNMA as well as loans repurchased related to our representations and warranties. The remaining portion of the portfolio is primarily in Consumer Banking.
Outstanding balances in the residential mortgage portfolio, excluding loans accounted for under the fair value option, increased $\$ 5.6$ billion during the six months ended June 30, 2017 as retention of new originations was partially offset by loan sales of $\$ 1.7$ billion, and run-off.
At June 30, 2017 and December 31, 2016, the residential mortgage portfolio included $\$ 26.1$ billion and $\$ 28.7$ billion of outstanding fully-insured loans. On this portion of the residential
mortgage portfolio, we are protected against principal loss as a result of either FHA insurance or long-term standby agreements that provide for the transfer of credit risk to FNMA and FHLMC. At June 30, 2017 and December 31, 2016, $\$ 19.5$ billion and $\$ 22.3$ billion had FHA insurance with the remainder protected by long-term standby agreements. At June 30, 2017 and December 31, 2016, $\$ 6.0$ billion and $\$ 7.4$ billion of the FHA-insured loan population were repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA. Table 26 presents certain residential mortgage key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio, our fully-insured loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing balances past due and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the residential mortgage portfolio excluding the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 45 .

Table $26 \begin{aligned} & \text { Residential Mortgage - Key } \\ & \text { Credit Statistics }\end{aligned}$


## Refreshed FICO

below 620
2006 and 2007
vintages ${ }^{(2)}$

Reported Basis

| Three Months | Six Months |
| :--- | :--- |
| Ended | Ended |
| June 30 | June 30 |
| 2017 | 2016 |
| $2017 \quad 2016$ |  |

12

Excluding Purchased Credit-impaired and Fully-Insured Loans

Three Months Ended Six Months Ended June 30

2017
2016
charge-off( 0.04 ) $\% ~ 0.07 \% ~ 0.00 \% ~ 0.14 \% ~(0.05 \quad) \% 0.10 \quad \% \quad 0.00 \quad \% \quad 0.18 \quad \%$ ratio (3)
${ }_{(1)}$ Outstandings, accruing past due, nonperforming loans and percentages of portfolio exclude loans accounted for under the fair value option.
(2) These vintages of loans account for $\$ 855$ million, or 33 percent, and $\$ 931$ million, or 31 percent, of nonperforming residential mortgage loans at June 30, 2017 and December 31, 2016.
(3) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.
Nonperforming residential mortgage loans decreased $\$ 477$ million during the six months ended June 30, 2017 as outflows, including sales of $\$ 242$ million, outpaced new inflows. Of the nonperforming residential mortgage loans at June 30, 2017, $\$ 857$ million, or 33 percent, were current on contractual payments. Loans accruing past due 30 days or more decreased $\$ 568$ million primarily due to an improvement in collections associated with the consumer real estate servicer conversion that occurred during the fourth quarter of 2016.
Net charge-offs decreased $\$ 53$ million to a $\$ 19$ million net recovery and decreased $\$ 127$ million to a $\$ 2$ million net recovery for the three and six months ended June 30, 2017, compared to the same periods in 2016. These decreases in net charge-offs were primarily driven by favorable portfolio trends and decreased write-downs on loans greater than 180 days past due driven by improvement in home prices and the U.S. economy. Additionally,
net charge-offs declined due to net recoveries of $\$ 14$ million related to nonperforming loan sales during the six months ended June 30, 2017, compared to nonperforming loan sale-related charge-offs of $\$ 42$ million for the same period in 2016.
Loans with a refreshed LTV greater than 100 percent represented two percent and three percent of the residential mortgage loan portfolio at June 30, 2017 and December 31, 2016. Of the loans with a refreshed LTV greater than 100 percent, 99 percent and 98 percent were performing at June 30, 2017 and December 31, 2016. Loans with a refreshed LTV greater than 100 percent reflect loans where the outstanding carrying value of the loan is greater than the most recent valuation of the property securing the loan. The majority of these loans have a refreshed LTV greater than 100 percent primarily due to home price deterioration since 2006, partially offset by subsequent appreciation.

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Of the $\$ 162.1$ billion in total residential mortgage loans outstanding at June 30, 2017, as shown in Table 27, 35 percent were originated as interest-only loans. The outstanding balance of interest-only residential mortgage loans that have entered the amortization period was $\$ 10.9$ billion, or 19 percent, at June 30, 2017. Residential mortgage loans that have entered the amortization period generally have experienced a higher rate of early stage delinquencies and nonperforming status compared to the residential mortgage portfolio as a whole. At June 30, 2017, $\$ 234$ million, or two percent of outstanding interest-only residential mortgages that had entered the amortization period were accruing past due 30 days or more compared to $\$ 1.3$ billion, or one percent for the entire residential mortgage portfolio. In addition, at June 30, 2017, $\$ 459$ million, or four percent of outstanding interest-only residential mortgage loans that had entered the amortization period were nonperforming, of which $\$ 242$ million were contractually current, compared to $\$ 2.6$ billion,
or two percent for the entire residential mortgage portfolio, of which $\$ 857$ million were contractually current. Loans that have yet to enter the amortization period in our interest-only residential mortgage portfolio are primarily well-collateralized loans to our wealth management clients and have an interest-only period of three to ten years. More than 80 percent of these loans that have yet to enter the amortization period will not be required to make a fully-amortizing payment until 2020 or later.
Table 27 presents outstandings, nonperforming loans and net charge-offs by certain state concentrations for the residential mortgage portfolio. The Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA) within California represented 16 percent and 15 percent of outstandings at June 30, 2017 and December 31, 2016. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 12 percent of outstandings at both June 30, 2017 and December 31, 2016.

Table 27 Residential Mortgage State Concentrations

| Outstandings ${ }^{(1)}$ |  | Nonperforming ${ }^{(1)}$ |  | Net Charge-offs ${ }^{(2)}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| June 30 | December 312016 |  |  | Three <br> Months <br> Ended <br> June 30 |  | Six Months <br> Ended <br> June 30 |  |
|  |  | June 3 | December 31 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| (Dollars 2017201620172016 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| in |  |  |  |  |  | 2017 |  | 2017 | 2016 |
| millions) |  |  |  |  |  |  |  |
| California\$63,046 | \$ 58,295 | \$458 | \$ 554 | \$(21) | \$(7) |  |  | \$(25) | ) \$(30) |
| New 16,064 | 14,476 | 250 | 290 | 1 | 4 |  |  |
| York ${ }^{(3)}$ | 14,476 |  |  |  |  |  |  |
| Florida ${ }^{(3)} 10,545$ | 10,213 | 280 | 322 | (3) | 2 |  | ) 17 |
| Texas 6,953 | 6,607 | 116 | 132 |  | 2 |  | 8 |
| Massachusefit 4 | 5,344 | 66 | 77 | - | 1 |  | 4 |
| $\begin{aligned} & \text { Other } \\ & \text { U.S./Non-U.S. } 9.25 \end{aligned}$ | 58,006 | 1,409 | 1,681 | 4 | 32 | 25 | 108 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| loans ${ }^{(4)}$ |  |  |  |  |  |  |  |
| Fully-insured |  |  |  |  |  |  |  |
| loan 26,065 | 28,729 |  |  |  |  |  |  |
| portfolio |  |  |  |  |  |  |  |
| Purchased9,274 credit-impaired residential mortgage | 10,127 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

loan
portfolio
(5)

Total
residential
mortgage \$197,446 \$ 191,797
loan
portfolio
(1)

Outstandings and nonperforming loans exclude loans accounted for under the fair value option.
Net charge-offs exclude $\$ 41$ million and $\$ 50$ million of write-offs in the residential mortgage PCI loan portfolio for
(2) the three and six months ended June 30, 2017 compared to $\$ 37$ million and $\$ 76$ million for the same periods in 2016. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.
(3) In these states, foreclosure requires a court order following a legal proceeding (judicial states).
(4) Amounts exclude the PCI residential mortgage and fully-insured loan portfolios.
(5) At June 30, 2017 and December 31, 2016, 47 percent and 48 percent of PCI residential mortgage loans were in California. There were no other significant single state concentrations.

## Home Equity

At June 30, 2017, the home equity portfolio made up 14 percent of the consumer portfolio and is comprised of home equity lines of credit (HELOCs), home equity loans and reverse mortgages.
At June 30, 2017, our HELOC portfolio had an outstanding balance of $\$ 54.7$ billion, or 88 percent of the total home equity portfolio compared to $\$ 58.6$ billion, also 88 percent, at December 31, 2016. HELOCs generally have an initial draw period of 10 years and the borrowers typically are only required to pay the interest due on the loans on a monthly basis. After the initial draw period ends, the loans generally convert to 15 -year amortizing loans.
At June 30, 2017, our home equity loan portfolio had an outstanding balance of $\$ 5.1$ billion, or eight percent of the total home equity portfolio compared to $\$ 5.9$ billion, or nine percent, at December 31,2016 . Home equity loans are almost all fixed-rate loans with amortizing payment terms of 10 to 30 years and of the $\$ 5.1$ billion at June 30, 2017, 57 percent have 25- to 30-year terms. At June 30, 2017, our reverse mortgage portfolio had an outstanding balance, excluding loans accounted for under the fair value option, of $\$ 2.1$ billion, or four percent of the total home equity portfolio compared to $\$ 1.9$ billion, or three percent, at December 31, 2016. We no longer originate reverse mortgages.

At June 30, 2017, approximately 68 percent of the home equity portfolio was in Consumer Banking, 25 percent was in All Other and the remainder of the portfolio was primarily in GWIM. Outstanding balances in the home equity portfolio, excluding loans accounted for under the fair value option, decreased $\$ 4.5$ billion during the six months ended June 30, 2017 primarily due to paydowns and charge-offs outpacing new originations and draws on existing lines. Of the total home equity portfolio at June 30, 2017 and December 31, 2016, $\$ 19.2$ billion and $\$ 19.6$ billion, or 31 percent and 29 percent, were in first-lien positions ( 33 percent and 31 percent excluding the PCI home equity portfolio). At June 30, 2017, outstanding balances in the home equity portfolio that were in a second-lien or more junior-lien position and where we also held the first-lien loan totaled $\$ 10.2$ billion, or 17 percent of our total home equity portfolio excluding the PCI loan portfolio.
Unused HELOCs totaled $\$ 45.8$ billion at June 30, 2017 compared to $\$ 47.2$ billion at December 31, 2016. The decrease was primarily due to accounts reaching the end of their draw period, which automatically eliminates open line exposure, and customers choosing to close accounts. Both of these more than offset the impact of new production. The HELOC utilization rate was 54

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percent at June 30, 2017 compared to 55 percent at December 31, 2016.
Table 28 presents certain home equity portfolio key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing
balances past due 30 days or more and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the home equity portfolio excluding the PCI loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 45 .

Table 28 Home Equity - Key Credit Statistics


| Reported Basis |  | Excluding Purchased Credit-impaired |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Three Months | Six Months | Three Months Ended June 30 |  | Six Months Ended June 30 |  |
| Ended | Ended |  |  |  |  |
| June 30 | June 30 |  |  |  |  |
| 20172016 | 20172016 | 2017 | 2016 | 2017 | 2016 |
| f0.32\% 0.70\% | 0.36\% 0.65\% | 0.34 | \% 0.74 | 0.38 | \% 0.69 |

Net
charge-off0.32\% $0.70 \% 0.36 \% ~ 0.65 \% ~ 0.34 \quad \% \quad 0.74 \quad \% \quad 0.38 \quad \% \quad 0.69 \quad \%$ ratio ${ }^{(4)}$
(1) Outstandings, accruing past due, nonperforming loans and percentages of the portfolio exclude loans accounted for under the fair value option.
${ }^{(2)}$ Accruing past due 30 days or more includes $\$ 65$ million and $\$ 81$ million and nonperforming loans include $\$ 324$ million and $\$ 340$ million of loans where we serviced the underlying first-lien at June 30, 2017 and December 31,

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2016. 

These vintages of loans have higher refreshed combined LTV ratios and accounted for 52 percent and 50 percent of
nonperforming home equity loans at June 30, 2017 and December 31, 2016, and 92 percent and 90 percent of net charge-offs for the three and six months ended June 30, 2017 and 44 percent and 42 percent for the same periods in 2016.
(4) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.
Nonperforming outstanding balances in the home equity portfolio decreased $\$ 237$ million during the six months ended June 30, 2017 as outflows, including $\$ 66$ million of net transfers to held-for-sale and $\$ 20$ million of sales outpaced new inflows. Of the nonperforming home equity portfolio at June 30, 2017, $\$ 1.4$ billion, or 53 percent, were current on contractual payments. Nonperforming loans that are contractually current primarily consist of collateral-dependent TDRs, including those that have been discharged in Chapter 7 bankruptcy, junior-lien loans where the underlying first-lien is 90 days or more past due, as well as loans that have not yet demonstrated a sustained period of payment performance following a TDR. In addition, $\$ 771$ million, or 29 percent of nonperforming home equity loans, were 180 days or more past due and had been written down to the estimated fair value of the collateral, less costs to sell.
Accruing loans that were 30 days or more past due decreased $\$ 70$ million during the six months ended June 30, 2017, primarily due to continued portfolio improvement and a consumer real estate servicer conversion that occurred during the fourth quarter of 2016.
In some cases, the junior-lien home equity outstanding balance that we hold is performing, but the underlying first-lien is not. For outstanding balances in the home equity portfolio on which we service the first-lien loan, we are able to track whether the first-lien loan is in default. For loans where the first-lien is serviced by a third party, we utilize credit bureau data to estimate the delinquency status of the first-lien. Given that the credit bureau database we use does not include a property address for the mortgages, we are unable to identify with certainty whether a reported delinquent first-lien mortgage pertains to the same property for which we hold a junior-lien loan. For certain loans, we
utilize a third-party vendor to combine credit bureau and public record data to better link a junior-lien loan with the underlying first-lien mortgage. At June 30, 2017, we estimate that $\$ 870$ million of current and $\$ 139$ million of 30 to 89 days past due junior-lien loans were behind a delinquent first-lien loan. We service the first-lien loans on $\$ 147$ million of these combined amounts, with the remaining $\$ 862$ million serviced by third parties. Of the $\$ 1.0$ billion of current to 89 days past due junior-lien loans, based on available credit bureau data and our own internal servicing data, we estimate that approximately $\$ 374$ million had first-lien loans that were 90 days or more past due. Net charge-offs decreased $\$ 76$ million to $\$ 50$ million and decreased $\$ 124$ million to $\$ 114$ million for the three and six months ended June 30, 2017 compared to same periods in 2016. These decreases in net charge-offs were driven by favorable portfolio trends due in part to improvement in home prices and the U.S. economy.
Outstanding balances with refreshed combined loan-to-value (CLTV) greater than 100 percent comprised six percent and seven percent of the home equity portfolio at June 30, 2017 and December 31, 2016. Outstanding balances in the home equity portfolio with a refreshed CLTV greater than 100 percent reflect loans where our loan and available line of credit combined with any outstanding senior liens against the property are equal to or greater than the most recent valuation of the property securing the loan. Depending on the value of the property, there may be collateral in excess of the first-lien that is available to reduce the severity of loss on the second-lien. Of those outstanding balances with a refreshed CLTV greater than 100 percent, 95 percent of the customers were current on their home equity loan and 91 percent

[^9]of second-lien loans with a refreshed CLTV greater than 100 percent were current on both their second-lien and underlying first-lien loans at June 30, 2017.
Of the $\$ 58.8$ billion in total home equity portfolio outstandings at June 30, 2017, as shown in Table 29, 40 percent require interest-only payments. The outstanding balance of HELOCs that have entered the amortization period was $\$ 16.9$ billion at June 30, 2017. The HELOCs that have entered the amortization period have experienced a higher percentage of early stage delinquencies and nonperforming status when compared to the HELOC portfolio as a whole. At June 30, 2017, $\$ 309$ million, or two percent of outstanding HELOCs that had entered the amortization period were accruing past due 30 days or more. In addition, at June 30, 2017, $\$ 1.9$ billion, or 11 percent of outstanding HELOCs that had entered the amortization period were nonperforming, of which $\$ 998$ million were contractually current. Loans in our HELOC portfolio generally have an initial draw period of 10 years and 10 percent of these loans will enter the amortization period in the remainder of 2017 and will be required to make fully-amortizing payments. We communicate to contractually current customers more than a year prior to the end of their draw period to inform them of the potential change to the payment structure before entering the amortization period, and provide payment options to customers prior to the end of the draw period.

Although we do not actively track how many of our home equity customers pay only the minimum amount due on their home equity loans and lines, we can infer some of this information through a review of our HELOC portfolio that we service and that is still in its revolving period (i.e., customers may draw on and repay their line of credit, but are generally only required to pay interest on a monthly basis). During the three months ended June 30, 2017, approximately 37 percent of these customers with an outstanding balance did not pay any principal on their HELOCs. Table 29 presents outstandings, nonperforming balances and net charge-offs by certain state concentrations for the home equity portfolio. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 13 percent of the outstanding home equity portfolio at both June 30, 2017 and December 31, 2016. For the three and six months ended June 30, 2017, loans within this MSA contributed 29 percent and 24 percent of net charge-offs within the home equity portfolio compared to 18 percent and 16 percent of net charge-offs for the same periods in 2016. The Los Angeles-Long Beach-Santa Ana MSA within California made up 11 percent of the outstanding home equity portfolio at both June 30, 2017 and December 31, 2016. For the three and six months ended June 30, 2017, loans within this MSA contributed net recoveries of $\$ 5$ million and $\$ 8$ million within the home equity portfolio compared to a net recovery of $\$ 1$ million and a net charge-off of $\$ 1$ million for the same periods in 2016.

Table 29 Home Equity State Concentrations

| Outstandings ${ }^{(1)}$ |  | Nonperforming ${ }^{(1)}$ |  | Net Charge-offs ${ }^{(2)}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Three <br> Months <br> Ended <br> June 30 |  | Six Months <br> Ended <br> June 30 |  |
| $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ |  |  | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | December 31 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  | 2016 |  |  |
| (Dollars 2017201620172016 |  |  |  |  |  |  |  |
| in |  |  |  |  |  | 2017 | 2016 | 2017 | 2016 |
| millions) |  |  |  |  |  |  |  |
| California\$ 16,314 | \$ 17,563 | \$769 | \$ 829 |  | \$(8) | \$(1 | ) \$(15) | \$9 |
| Florida ${ }^{(3)} 6,745$ | 7,319 | 399 | 442 | 10 | 24 | 21 | 41 |
| New (3) 4,830 | 5,102 | 196 | 201 | 11 | 14 | 21 | 25 |
| Jersey ${ }^{(3)} 4,830$ | 5,102 |  |  |  |  | 21 | 25 |
| New 4,473 | 4,720 | 257 | 271 | 9 | 16 | 17 | 26 |
| York (3) ${ }^{\text {a }}$, 47 | 4,120 |  |  |  |  | 17 | 26 |
| Massachusefer6 | 3,078 | 94 | 100 | 1 | 5 | 2 | 8 |
| Other | 25,050 | 966 | 1,075 | 27 | 68 | 68 | 129 |
| U.S./Non-U.S. |  |  |  |  |  |  |  |
| \$58,772 | \$ 62,832 | \$2,681 | \$ 2,918 | \$50 | \$126 | \$114 | \$238 |

Home
equity
loans ${ }^{(4)}$
Purchased
credit-impaired
home
equity
$3,170 \quad 3,611$
portfolio
(5)

Total
home
equity $\$ 61,942 \$ 66,443$
loan
portfolio
(1)

Outstandings and nonperforming loans exclude loans accounted for under the fair value option.
Net charge-offs exclude $\$ 14$ million and $\$ 38$ million of write-offs in the home equity PCI loan portfolio for the
(2) three and six months ended June 30, 2017 compared to $\$ 45$ million and $\$ 111$ million for the same periods in 2016. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.
${ }^{(3)}$ In these states, foreclosure requires a court order following a legal proceeding (judicial states).
(4) Amount excludes the PCI home equity portfolio.
(5) At June 30, 2017 and December 31, 2016, 28 percent and 29 percent of PCI home equity loans were in California. There were no other significant single state concentrations.
Purchased Credit-impaired Loan Portfolio
Loans acquired with evidence of credit quality deterioration since origination and for which it is probable at purchase that we will be unable to collect all contractually required payments are accounted for under the accounting standards for PCI loans. For more information on PCI loans, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of
the Corporation's 2016 Annual Report on Form 10-K and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.
Table 30 presents the unpaid principal balance, carrying value, related valuation allowance and the net carrying value as a percentage of the unpaid principal balance for the PCI loan portfolio.

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Table 30 Purchased Credit-impaired Loan Portfolio
June 30, 2017

| (Dollars Unpaid | Gross | Related | Carrying <br> Value Net | Percent of |
| :---: | :---: | :---: | :---: | :---: |
| in Principal | Carrying | Valuation | of | Unpaid |
| millions) Balance | Value | Allowance | Valuation <br> Allowance | Principal Balance |
| Residential mortgage \$9,442 (1) | \$ 9,274 | \$ 165 | \$ 9,109 | 96.47 \% |
| $\begin{aligned} & \text { Home } \\ & \text { equity } \end{aligned} \quad 3,239$ | 3,170 | 210 | 2,960 | 91.39 |
| Total purchased |  |  |  |  |
| credit-impdiire, 681 <br> loan <br> portfolio | \$ 12,444 | \$ 375 | \$ 12,069 | 95.17 |

December 31, 2016
Residential
mortgage \$ 10,330 \$ 10,127 \$ 169 \$ 9,958 $96.40 \%$
(1)

Home
equity
$\begin{array}{lllll}3,689 & 3,611 & 250 & 3,361 & 91.11\end{array}$
Total
purchased
credit-impdirred 019 \$ 13,738 \$ 419 \$ 13,319 95.01
loan
portfolio
At June 30, 2017 and December 31, 2016, pay option loans had an unpaid principal balance of $\$ 1.7$ billion and $\$ 1.9$ billion and a carrying value of $\$ 1.6$ billion and $\$ 1.8$ billion. This includes $\$ 1.4$ billion and $\$ 1.6$ billion of loans
(1) that were credit-impaired upon acquisition and $\$ 161$ million and $\$ 226$ million of loans that are 90 days or more past due at June 30, 2017 and December 31, 2016. The total unpaid principal balance of pay option loans with accumulated negative amortization was $\$ 229$ million and $\$ 303$ million, including $\$ 12$ million and $\$ 16$ million of negative amortization at June 30, 2017 and December 31, 2016.
The total PCI unpaid principal balance decreased $\$ 1.3$ billion, or 10 percent, during the six months ended June 30, 2017 primarily driven by payoffs, paydowns and write-offs. During the six months ended June 30, 2017, we sold PCI loans with a carrying value of $\$ 204$ million compared to sales of $\$ 324$ million for the same period in 2016.
Of the unpaid principal balance of $\$ 12.7$ billion at June 30,2017 , $\$ 11.4$ billion, or 90 percent, was current based on the contractual terms, $\$ 739$ million, or six percent, was in early stage delinquency, and $\$ 432$ million was 180 days or more past due, including $\$ 367$ million of first-lien mortgages and $\$ 65$ million of home equity loans.
The PCI residential mortgage loan portfolio represented 75 percent of the total PCI loan portfolio at June 30, 2017. Those loans to borrowers with a refreshed FICO score below 620 represented 25 percent of the PCI residential mortgage loan portfolio at June 30, 2017. Loans with a refreshed LTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 20
percent of the PCI residential mortgage loan portfolio and 23 percent based on the unpaid principal balance at June 30, 2017.

The PCI home equity portfolio represented 25 percent of the total PCI loan portfolio at June 30, 2017. Those loans with a refreshed FICO score below 620 represented 16 percent of the PCI home equity portfolio at June 30, 2017. Loans with a refreshed

CLTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 43 percent of the PCI home equity portfolio and 46 percent based on the unpaid principal balance at June 30, 2017.
U.S. Credit Card

At June 30, 2017, 97 percent of the U.S. credit card portfolio was managed in Consumer Banking with the remainder in GWIM. Outstandings in the U.S. credit card portfolio decreased $\$ 1.5$ billion during the six months ended June 30, 2017 due to paydowns and a seasonal decline in purchase volume. Net charge-offs increased $\$ 67$ million to $\$ 640$ million and $\$ 86$ million to $\$ 1.2$ billion for the three and six months ended June 30, 2017 compared to the same periods in 2016 due to portfolio seasoning and loan growth. U.S. credit card loans 30 days or more past due and still accruing interest decreased $\$ 45$ million and loans 90 days or more past due and still accruing interest decreased $\$ 10$ million during the six months ended June 30, 2017, driven by seasonal declines.
Unused lines of credit for U.S. credit card totaled $\$ 328.9$ billion and $\$ 321.6$ billion at June 30, 2017 and December 31, 2016. The increase was driven by a seasonal decrease in line utilization due to a decrease in transaction volume as well as account growth and lines of credit increases.
Table 31 presents certain state concentrations for the U.S. credit card portfolio.
Table 31 U.S. Credit Card State Concentrations


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## Direct/Indirect Consumer

At June 30, 2017, approximately 54 percent of the direct/indirect portfolio was included in Consumer Banking (consumer auto and specialty lending - automotive, marine, aircraft, recreational vehicle loans and consumer personal loans) and 46 percent was included in GWIM (principally securities-based lending loans).

Outstandings in the direct/indirect portfolio decreased $\$ 596$ million during the six months ended June 30, 2017 primarily driven by lower draws and utilization in the securities-based lending portfolio.
Table 32 presents certain state concentrations for the direct/indirect consumer loan portfolio.
Table 32 Direct/Indirect State Concentrations


At June 30, 2017, approximately 78 percent of the $\$ 2.7$ billion other consumer portfolio was consumer auto leases included in Consumer Banking. The remainder is primarily associated with certain consumer finance businesses that we previously exited.
Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity
Table 33 presents nonperforming consumer loans, leases and foreclosed properties activity for the three and six months ended June 30, 2017 and 2016. For more information on nonperforming loans, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form $10-\mathrm{K}$ and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements. During the six months ended June 30, 2017, nonperforming consumer loans declined $\$ 722$ million to $\$ 5.3$ billion driven in part by loan sales of $\$ 261$ million and net transfers of loans to held-for-sale of $\$ 198$ million. Additionally, nonperforming loans declined as outflows outpaced new inflows.
The outstanding balance of a real estate-secured loan that is in excess of the estimated property value less costs to sell is charged off no later than the end of the month in which the loan becomes 180 days past due unless repayment of the loan is fully insured. At June 30, 2017, $\$ 2.1$ billion, or 39 percent of nonperforming consumer real estate loans and foreclosed properties had been written down to their estimated property value less costs to sell, including $\$ 1.9$ billion of nonperforming loans 180 days or more past due and $\$ 285$ million of foreclosed properties. In addition, at June 30,

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2017, $\$ 2.3$ billion, or 43 percent of nonperforming consumer loans were modified and are
now current after successful trial periods, or are current loans classified as nonperforming loans in accordance with applicable policies.
Foreclosed properties decreased $\$ 78$ million during the six months ended June 30, 2017 as liquidations outpaced additions. PCI loans are excluded from nonperforming loans as these loans were written down to fair value at the acquisition date; however, once we acquire the underlying real estate upon foreclosure of the delinquent PCI loan, it is included in foreclosed properties. Not included in foreclosed properties at June 30, 2017 was $\$ 1.0$ billion of real estate that was acquired upon foreclosure of certain delinquent government-guaranteed loans (principally FHA-insured loans). We exclude these amounts from our nonperforming loans and foreclosed properties activity as we expect we will be reimbursed once the property is conveyed to the guarantor for principal and, up to certain limits, costs incurred during the foreclosure process and interest incurred during the holding period.
Nonperforming loans also include certain loans that have been modified in TDRs where economic concessions have been granted to borrowers experiencing financial difficulties. These concessions typically result from our loss mitigation activities and could include reductions in the interest rate, payment extensions, forgiveness of principal, forbearance or other actions. Certain TDRs are classified as nonperforming at the time of restructuring and may only be returned to performing status after considering the borrower's sustained repayment performance for a reasonable period, generally six months. Nonperforming TDRs, excluding those modified loans in the PCI loan portfolio, are included in Table 33.

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| $\begin{array}{l}\text { Nonperforming } \\ \text { Consumer Loans, } \\ \text { Leases and }\end{array}$ |  |  |
| :--- | :--- | :--- | :--- |
| Foreclosed |  |  |
| Properties Activity |  |  |$]$

## $30^{(3)}$

Total
foreclosed

| properties,285 | 416 | 285 |
| :--- | :--- | :--- |
| 16 |  |  |

June 30
(4)

Nonperforming
consumer
loans,
$\begin{array}{lllll}\text { leases } \\ \text { and } & \$ 5,567 & \$ 7,121 & \$ 5,567 & \$ 7,121\end{array}$
foreclosed
properties,
June 30
Nonperforming
consumer
loans and
leases as
a
percentagd. 18 \% 1.49 \%
of
outstanding
consumer
loans and
leases (5)
Nonperforming
consumer
loans,
leases
and
foreclosed
properties
as a
percentage $_{1.24} \quad 1.58$
of
outstanding
consumer
loans,
leases
and
foreclosed
properties
(5)

Balances do not include nonperforming LHFS of $\$ 4$ million and $\$ 20$ million and nonaccruing TDRs removed from
(1) the PCI loan portfolio prior to January 1, 2010 of $\$ 22$ million and $\$ 38$ million at June 30, 2017 and 2016 as well as loans accruing past due 90 days or more as presented in Table 23 and Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.
Consumer loans may be returned to performing status when all principal and interest is current and full repayment
${ }^{(2)}$ of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection.
(3) At June 30, 2017, 35 percent of nonperforming loans were 180 days or more past due.

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(4) Foreclosed property balances do not include properties insured by certain government-guaranteed loans, principally FHA-insured loans, of $\$ 1.0$ billion and $\$ 1.3$ billion at June 30, 2017 and 2016.
${ }^{(5)}$ Outstanding consumer loans and leases exclude loans accounted for under the fair value option.
We classify junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At June 30, 2017 and December 31, 2016, $\$ 374$ million and $\$ 428$ million of such junior-lien home
equity loans were included in nonperforming loans and leases.
Table 34 presents TDRs for the consumer real estate portfolio. Performing TDR balances are excluded from nonperforming loans and leases in Table 33.

Table 34 Consumer Real Estate Troubled Debt Restructurings
June 30, 2017
December 31, 2016
(Dollars
in Total Nonperforming Performing Total Nonperforming Performing
millions)
Residential
mortgage \$11,120 \$ 1,686 \$ 9,434 \$12,631 \$ 1,992 \$ 10,639
$(1,2)$
Home
equity ${ }^{(3)}$
Total
consumer
real estate
troubled
debt
restructurings
At June 30, 2017 and December 31, 2016, residential mortgage TDRs deemed collateral dependent totaled $\$ 3.1$
${ }^{(1)}$ billion and $\$ 3.5$ billion, and included $\$ 1.3$ billion and $\$ 1.6$ billion of loans classified as nonperforming and $\$ 1.8$ billion and $\$ 1.9$ billion of loans classified as performing.
(2) Residential mortgage performing TDRs included $\$ 4.4$ billion and $\$ 5.3$ billion of loans that were fully-insured at June 30, 2017 and December 31, 2016.
Home equity TDRs deemed collateral dependent totaled $\$ 1.7$ billion and $\$ 1.6$ billion, and included $\$ 1.3$ billion of
${ }^{(3)}$ loans classified as nonperforming for both periods, and $\$ 353$ million and $\$ 301$ million of loans classified as performing at June 30, 2017 and December 31, 2016, respectively.
In addition to modifying consumer real estate loans, we work with customers who are experiencing financial difficulty by modifying credit card and other consumer loans. Credit card and other consumer loan modifications generally involve a reduction in the customer's interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs (the renegotiated TDR portfolio).
Modifications of credit card and other consumer loans are made through renegotiation programs utilizing direct customer contact, but may also utilize external renegotiation programs. The renegotiated TDR portfolio is excluded in large part from Table 33 as substantially all of the loans remain on accrual status until either charged off or paid in full. At June 30, 2017 and December 31, 2016, our renegotiated TDR portfolio was $\$ 478$ million and $\$ 610$ million, of which $\$ 427$ million and $\$ 493$ million were current or less than 30 days past due under the modified terms. The decline in the renegotiated TDR portfolio was primarily driven by paydowns and charge-offs as well as lower program enrollments. For more information on the renegotiated TDR portfolio, see Note

4 - Outstanding Loans and Leases to the Consolidated Financial Statements.
Commercial Portfolio Credit Risk Management

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Commercial credit risk is evaluated and managed with the goal that concentrations of credit exposure do not result in undesirable levels of risk. We review, measure and manage concentrations of credit exposure by industry, product, geography, customer relationship and loan size. We also review, measure and manage commercial real estate loans by geographic location and property type. In addition, within our non-U.S. portfolio, we evaluate exposures by region and by country. Tables 39,42 and 47 summarize our concentrations. We also utilize syndications of exposure to third parties, loan sales, hedging and other risk mitigation techniques to manage the size and risk profile of the commercial credit portfolio. For more information on our industry concentrations, including our utilized exposure to the energy sector, which was three percent of total commercial utilized exposure at both June 30, 2017 and December 31, 2016, see

Commercial Portfolio Credit Risk Management - Industry Concentrations on page 53 and Table 42.
For more information on our accounting policies regarding delinquencies, nonperforming status and net charge-offs for the commercial portfolio, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Commercial Credit Portfolio
During the six months ended June 30, 2017, other than in the higher risk energy sub-sectors, credit quality among large corporate borrowers was strong. We saw further improvement in the energy sector in the six months ended June 30 , 2017. Credit quality of commercial real estate borrowers continued to be strong with
conservative LTV ratios, stable market rents in most sectors and vacancy rates remaining low.
Outstanding commercial loans and leases increased $\$ 10.8$ billion during the six months ended June 30, 2017 primarily in U.S. commercial. Nonperforming commercial loans and leases decreased $\$ 232$ million to $\$ 1.6$ billion and reservable criticized balances decreased $\$ 680$ million to $\$ 15.6$ billion during the six months ended June 30, 2017 driven by improvements in the energy sector. The allowance for loan and lease losses for the commercial portfolio decreased $\$ 78$ million to $\$ 5.2$ billion at June 30, 2017 compared to December 31, 2016. For additional information, see Allowance for Credit Losses on page 57.
Table 35 presents our commercial loans and leases portfolio and related credit quality information at June 30, 2017 and December 31, 2016.

Table 35 Commercial Loans and Leases

| Outstandings | Nonperforming | Accruing Past Due <br> 90 Days or More |
| :--- | :--- | :--- |



Loans
accounted

| for under |
| :--- | :--- | :--- | :--- | :--- |
| the fair | 6,$290 \quad 6,034 \quad 35 \quad 84 \quad-$

value
option (3)
Total
$\begin{array}{llllll}\text { commercial } \\ \text { loans and }\end{array} 469,316 \$ 458,526 \quad \$ 1,555 \$ 1,787 \quad \$ 164 \$ 208$
loans and
leases
(1) Includes U.S. commercial real estate loans of $\$ 55.6$ billion and $\$ 54.3$ billion and non-U.S. commercial real estate loans of $\$ 3.6$ billion and $\$ 3.1$ billion at June 30, 2017 and December 31, 2016.
(2) Includes card-related products.

Commercial loans accounted for under the fair value option include U.S. commercial loans of $\$ 3.2$ billion and $\$ 2.9$
(3) billion at June 30, 2017 and December 31, 2016 and includes $\$ 3.1$ billion of non-U.S. commercial loans for both periods. For more information on the fair value option, see Note 15 - Fair Value Option to the Consolidated Financial Statements.
Table 36 presents net charge-offs and related ratios for our commercial loans and leases for the three and six months ended June 30, 2017 and 2016. The decrease in net charge-offs of $\$ 23$ million for the six months ended June 30, 2017 compared to the same period in 2016 was primarily due to lower energy sector related losses.

Table 36 Commercial Net Charge-offs and Related Ratios

| Net Charge-offs | Net Charge-off Ratios (1) |  |  |
| :--- | :--- | :--- | :--- |
| Three | Six Months | Three Months | Six Months |
| Months | Ended | Ended | Ended |
| Ended | June 30 | June 30 | June 30 |
| June 30 |  |  |  |

(Dollars
in $\quad 2017 \quad 2016 \quad 2017 \quad 2016 \quad 2017 \quad 2016 \quad 2017 \quad 2016$
millions)
U.S.

Commercial
real estate ${ }^{5} \quad(2 \quad) 1 \quad(8 \quad) 0.03 \quad(0.01) \quad-\quad$ (0.03)
Commercial
$\begin{array}{lllllllll}\text { lease } & 1 & 15 & 1 & 13 & 0.01 & 0.30 & 0.01 & 0.13\end{array}$
financing

| Non-U.S. <br> commercial <br> com | 45 | 61 | 87 | 0.21 | 0.20 | 0.14 | 0.19 |
| ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| 104 | 86 | 159 | 185 | 0.09 | 0.08 | 0.07 | 0.09 |

U.S.
$\begin{array}{lllllllll}\begin{array}{l}\text { small } \\ \text { business }\end{array} & 53 & 50 & 105 & 102 & 1.60 & 1.55 & 1.60 & 1.59\end{array}$
commercial
Total
commercial $\begin{array}{lllllll}\$ 157 & \$ 136 & \$ 264 & \$ 287 & 0.14 & 0.12 & 0.12\end{array} 0.13$
(1) Net charge-off ratios are calculated as annualized net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.
Table 37 presents commercial credit exposure by type for utilized, unfunded and total binding committed credit exposure. Commercial utilized credit exposure includes standby letters of credit (SBLCs) and financial guarantees,
bankers' acceptances and commercial letters of credit that have been issued and for
which we are legally bound to advance funds under prescribed conditions during a specified time period and excludes exposure related to trading account assets. Although funds have not yet been advanced, these exposure types are considered utilized for credit risk management purposes.

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Total commercial utilized credit exposure increased $\$ 8.5$ billion during the six months ended June 30, 2017 primarily driven by increases in loans and leases. The utilization rate for loans and
leases, SBLCs and financial guarantees, commercial letters of credit and bankers acceptances, in the aggregate, was 59 percent and 58 percent at June 30, 2017 and December 31, 2016.

Table 37 Commercial Credit Exposure by Type
Commercial Utilized ${ }^{(1)}$ Commercial Unfunded Total Commercial (2,3,4) Committed

| (Dollars | June 30 | December 31 June 30 | December 31 | June 30 | December 31 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| in | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |

Loans
and $\quad \$ 475,266 \$ 464,260 \quad \$ 358,009 \$ 366,106 \quad \$ 833,275 \$ 830,366$
leases ${ }^{(5)}$
$\begin{array}{lllllll}\text { Derivative }_{\text {Dassets }{ }^{(6)}} 39,190 & 42,512 & - & - & 39,190 & 42,512\end{array}$
Standby
letters of
$\begin{array}{llllll}\text { credit and } 34,810 & 33,135 & 686 & 660 & 35,496 & 33,795\end{array}$
financial
guarantees
Debt

| securities <br> and other | 27,217 | 26,244 | 4,395 | 5,474 | 31,612 |
| :--- | :--- | :--- | :--- | :--- | :--- |$\quad 31,718$

investments

| Loans held-for-sale 402 | 6,510 | 1,343 | 3,824 | 5,945 | 10,334 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Commercial letters of 1,553 credit | 1,464 | 95 | 112 | 1,648 | 1,576 |
| Bankers' 335 acceptances | 395 | - | 13 | 335 | 408 |
| Other 391 | 372 | - | - | 391 | 372 |

Total $\$ 583,364 \$ 574,892 \quad \$ 364,528 \$ 376,189 \quad \$ 947,892 \$ 951,081$
Commercial utilized exposure includes loans of $\$ 6.3$ billion and $\$ 6.0$ billion and issued letters of credit with a
${ }^{(1)}$ notional amount of $\$ 262$ million and $\$ 284$ million accounted for under the fair value option at June 30, 2017 and December 31, 2016.
${ }_{(2)}$ Commercial unfunded exposure includes commitments accounted for under the fair value option with a notional amount of $\$ 4.2$ billion and $\$ 6.7$ billion at June 30, 2017 and December 31, 2016.
${ }^{(3)}$ Excludes unused business card lines which are not legally binding.
Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g.,
${ }^{(4)}$ syndicated or participated) to other financial institutions. The distributed amounts were $\$ 11.6$ billion and $\$ 12.1$ billion at June 30, 2017 and December 31, 2016.
(5) Includes credit risk exposure associated with assets under operating lease arrangements of $\$ 5.9$ billion and $\$ 5.7$ billion at June 30, 2017 and December 31, 2016.
${ }^{(6)}$ Derivative assets are carried at fair value, reflect the effects of legally enforceable master netting agreements and have been reduced by cash collateral of $\$ 34.6$ billion and $\$ 43.3$ billion at June 30, 2017 and December 31, 2016. Not reflected in utilized and committed exposure is additional non-cash derivative collateral held of $\$ 25.5$ billion
and $\$ 25.3$ billion at June 30, 2017 and December 31, 2016, which consists primarily of other marketable securities. Table 38 presents commercial utilized reservable criticized exposure by loan type. Criticized exposure corresponds to the Special Mention, Substandard and Doubtful asset categories as defined by regulatory authorities. Total commercial utilized reservable criticized exposure decreased $\$ 680$ million, or four
percent, during the six months ended June 30, 2017 primarily driven by paydowns and net upgrades in the energy portfolio. Approximately 77 percent and 76 percent of commercial utilized reservable criticized exposure was secured at June 30, 2017 and December 31, 2016.

Table 38 Commercial Utilized Reservable
Criticized Exposure

June 30, 2017
December 31,
2016
(Dollars in
Amount Percent Amount Percent
millions)
U.S.
commercial 10,029 $3.28 \% \$ 10,3113.46 \%$
$\begin{array}{llll}\text { Commercial }_{2} & 1.06 & 399 & 0.68\end{array}$
real estate
Commercial

| lease | 725 | 3.32 | 810 | 3.62 |
| :--- | :--- | :--- | :--- | :--- |

financing
$\begin{array}{llll}\begin{array}{l}\text { Non-U.S. } \\ \text { commerciăf }\end{array} 381 & 3.47 & 3,974 & 4.17\end{array}$
$\begin{array}{llll}14,777 & 3.04 & 15,494 & 3.27\end{array}$
U.S.

| small <br> business | 863 | 6.36 | 826 | 6.36 |
| :--- | :--- | :--- | :--- | :--- |

## commercial

Total
commercial
utilized
reservable $\$ 15,6403.13 \quad \$ 16,3203.35$
criticized
exposure
Total commercial utilized reservable criticized exposure includes loans and leases of $\$ 14.3$ billion and $\$ 14.9$
${ }^{(1)}$ billion at June 30, 2017 and December 31, 2016 and includes $\$ 1.4$ billion of commercial letters of credit for both periods.
${ }_{(2)}$ Percentages are calculated as commercial utilized reservable criticized exposure divided by total commercial utilized reservable exposure for each exposure category.
U.S. Commercial

At June 30, 2017, 71 percent of the U.S. commercial loan portfolio, excluding small business, was managed in Global Banking, 17 percent in Global Markets, 11 percent in GWIM (generally business-purpose loans for high net worth clients) and the remainder primarily in Consumer Banking. U.S. commercial loans, excluding loans accounted for under the fair value option, increased $\$ 7.3$ billion, or three percent, during the six months ended June 30, 2017 due to growth across most of the commercial businesses. Reservable criticized balances decreased $\$ 282$ million, or three percent, and nonperforming loans and leases decreased $\$ 217$ million, or 17 percent, in the six months ended June 30, 2017 driven by improvements in the energy sector. Net charge-offs increased $\$ 24$ million and $\$ 3$ million for the three and six months ended June 30, 2017 compared to the same periods in 2016. The three month increase was primarily
driven by a single energy client loss.

## Commercial Real Estate

Commercial real estate primarily includes commercial loans and leases secured by non-owner-occupied real estate and is dependent on the sale or lease of the real estate as the primary source of repayment. The portfolio remains diversified across property types and geographic regions. California represented the largest state concentration at 24 percent and 23 percent of the commercial real estate loans and leases portfolio at June 30, 2017 and December 31, 2016. The commercial real estate portfolio is predominantly managed in Global Banking and consists of loans made primarily to public and private developers, and commercial real estate firms. Outstanding loans increased $\$ 1.8$ billion, or three percent, during the six months ended June 30, 2017 due to new originations outpacing paydowns.
For the three and six months ended June 30, 2017, we continued to see low default rates and solid credit quality in both the residential and non-residential portfolios. We use a number of

[^10]proactive risk mitigation initiatives to reduce adversely rated exposure in the commercial real estate portfolio, including transfers of deteriorating exposures to management by independent special asset officers and the pursuit of loan restructurings or asset sales to achieve the best results for our customers and the Corporation.
Nonperforming commercial real estate loans and foreclosed properties increased $\$ 77$ million, or 90 percent, driven by a small number of clients across property types. Reservable criticized
balances increased $\$ 243$ million, or 61 percent, during the six months ended June 30, 2017 primarily due to loan downgrades. Net charge-offs were $\$ 5$ million and $\$ 1$ million for the three and six months ended June 30, 2017 compared to net recoveries of $\$ 2$ million and $\$ 8$ million for the same periods in 2016. Table 39 presents outstanding commercial real estate loans by geographic region, based on the geographic location of the collateral, and by property type.

Outstanding
Table 39 Commercial Real
Estate Loans
(Dollars

| (Dolars | June 30 | December 31 |
| :--- | :--- | :--- |
| in | 2017 | 2016 |
| millions) |  |  |

By
Geographic
Region
California\$ 13,983 \$ 13,450
Northeast 9,835 10,329
Southwest7,755 7,567
Southeast 5,650 5,630
Midwest 4,169 4,380
Florida 3,405 3,213
Midsouth 2,957 2,346
Northwest2,723 2,430
Illinois 2,463 2,408
Non-U.S. 3,573 3,103
Other ${ }^{(1)}$ 2,664 2,499
Total
outstanding
commerci\$159,177 \$ 57,355
real estate
loans
By
Property
Type
Non-residential
Office $\$ 17,893 \$ 16,643$

| Shopping ${ }_{8,985}$ centers/retail | 8,794 |
| :---: | :---: |
| Multi-family ${ }_{8}$ | 8,817 |
| Hotels / 5,810 | 5,550 |
| Motels 5,810 |  |
| 5,500 | 5,35 |

## Industrial

/
Warehouse
Multi-Use2,806 2,822
Unsecured,094 1,730
Land and
land $257 \quad 357$
development
Other 5,651 5,595
Total
non-residential ${ }^{57,726}$
55,665
Residential,451 1,690
Total
outstanding
commerci\$159,177 \$ 57,355
real estate
loans
(1) Includes unsecured loans to real estate investment trusts and national home builders whose portfolios of properties span multiple geographic regions and properties in the states of Colorado, Utah, Hawaii, Wyoming and Montana.
At June 30, 2017, total committed non-residential exposure was $\$ 78.3$ billion compared to $\$ 76.9$ billion at December 31,2016 , of which $\$ 57.7$ billion and $\$ 55.7$ billion were funded loans. Non-residential nonperforming loans and foreclosed properties increased $\$ 77$ million, or 95 percent, to $\$ 158$ million at June 30, 2017 compared to December 31,2016 driven by a small number of clients across property types. The non-residential nonperforming loans and foreclosed properties represented 0.27 percent and 0.14 percent of total non-residential loans and foreclosed properties at June 30, 2017 and December 31, 2016. Non-residential utilized reservable criticized exposure increased $\$ 229$ million, or 58 percent, to $\$ 626$ million at June 30,2017 compared to $\$ 397$ million at December 31, 2016, which represented 1.06 percent and 0.70 percent of non-residential utilized reservable exposure. For the non-residential portfolio, net charge-offs increased $\$ 6$ million to $\$ 5$ million and increased $\$ 8$ million to $\$ 1$ million for the three and six months ended June 30, 2017 compared to the same periods in 2016.
At June 30, 2017, total committed residential exposure was $\$ 3.3$ billion compared to $\$ 3.7$ billion at December 31, 2016, of which $\$ 1.5$ billion and $\$ 1.7$ billion were funded secured loans.

The nonperforming loans, leases and foreclosed properties and the utilized reservable criticized ratios for the residential portfolio were 0.32 percent and 1.09 percent at June 30,2017 compared to 0.35 percent and 0.16 percent at December 31, 2016.
At June 30, 2017 and December 31, 2016, the commercial real estate loan portfolio included $\$ 7.1$ billion and $\$ 6.8$ billion of funded construction and land development loans that were originated to fund the construction and/or rehabilitation of commercial properties. Reservable criticized construction and land development loans totaled \$262 million and $\$ 107$ million, and nonperforming construction and land development loans and foreclosed properties totaled $\$ 55$ million and $\$ 44$ million at June 30, 2017 and December 31, 2016. During a property's construction phase, interest income is typically paid from interest reserves that are established at the inception of the loan. As construction is completed and the property is put into service, these interest reserves are depleted and interest payments from operating cash flows begin. We do not recognize interest income on nonperforming loans regardless of the existence of an interest reserve.

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Non-U.S. Commercial
At June 30, 2017, 78 percent of the non-U.S. commercial loan portfolio was managed in Global Banking and 22 percent in Global Markets. Outstanding loans, excluding loans accounted for under the fair value option, increased $\$ 1.4$ billion during the six months ended June 30, 2017. Net charge-offs increased $\$ 1$ million to $\$ 46$ million and decreased $\$ 26$ million to $\$ 61$ million for the three and six months ended June 30, 2017 compared to the same periods in 2016. The six month decrease was primarily due to a decline in energy sector related losses. For more information on the non-U.S. commercial portfolio, see Non-U.S. Portfolio on page 56.
U.S. Small Business Commercial

The U.S. small business commercial loan portfolio is comprised of small business card loans and small business loans managed in Consumer Banking. Credit card-related products were 50 percent and 48 percent of the U.S. small business commercial portfolio at June 30, 2017 and December 31, 2016. Net charge-offs increased $\$ 3$ million to $\$ 53$ million and increased $\$ 3$ million to $\$ 105$ million and for the three and six months ended June 30, 2017 compared to the same periods in 2016. Of the U.S. small
business commercial net charge-offs, 89 percent and 88 percent were credit card-related products for the three and six months ended June 30, 2017 compared to 87 percent and 88 percent for the same periods in 2016.
Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity
Table 40 presents the nonperforming commercial loans, leases and foreclosed properties activity during the three and six months ended June 30, 2017 and 2016. Nonperforming loans do not include loans accounted for under the fair value option. During the three and six months ended June 30, 2017, nonperforming commercial loans and leases decreased $\$ 208$ million and $\$ 183$ million to $\$ 1.5$ billion. Approximately 76 percent of commercial nonperforming loans, leases and foreclosed properties were secured and approximately 63 percent were contractually current. Commercial nonperforming loans were carried at approximately 86 percent of their unpaid principal balance before consideration of the allowance for loan and lease losses as the carrying value of these loans has been reduced to the estimated property value less costs to sell.
$\left.\begin{array}{llll} & \begin{array}{l}\text { Nonperforming } \\ \text { Commercial Loans, } \\ \text { Teases and }\end{array} \\ \text { Table } 40 \\ \text { Foreclosed } \\ \text { Properties Activity } \\ \text { (1, 2) }\end{array}\right)$

Paydowns(266 ) (211 ) (533 ) (331 )
Sales (33) (87 ) (55 ) (93 )
Returns
to performing $(86)(29 \quad)(140)(76)$
status (3)
Charge-off85 ) (106 ) (167 ) (248 )
Transfers
to
foreclosed(5 ) (2 ) (27 ) (2 )
properties
(4)

Transfers
to loans (21 ) - (21 ) -
held-for-sale
Total net
additions/(reductions)

leases,
June 30
Total
foreclosed
$\begin{array}{llll}\text { properties, } 40 & 19 & 40 & 19\end{array}$
June 30
(4)

Nonperforming
commercial
loans,
leases $\quad \$ 1,560 \quad \$ 1,678 \quad \$ 1,560 \quad \$ 1,678$
foreclosed
properties,
June 30
Nonperforming
commercial
loans and
leases as
a
percentag@ी. 33 \% 0.37 \%
of
outstanding
commercial
loans and
leases ${ }^{(5)}$

Nonperforming commercial loans, leases and
foreclosed properties
as a
percentage
of
outstanding commercial
loans,
leases
and
foreclosed properties ${ }^{(5)}$
(1)

Balances do not include nonperforming LHFS of \$264 million and \$203 million at June 30, 2017 and 2016.
(2) Includes U.S. small business commercial activity. Small business card loans are excluded as they are not classified as nonperforming.
Commercial loans and leases may be returned to performing status when all principal and interest is current and
(3) full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection. TDRs are generally classified as performing after a sustained period of demonstrated payment performance.
(4) New foreclosed properties represents transfers of nonperforming loans to foreclosed properties net of charge-offs recorded during the first 90 days after transfer of a loan to foreclosed properties.
${ }^{(5)}$ Outstanding commercial loans exclude loans accounted for under the fair value option.

Table 41 presents our commercial TDRs by product type and performing status. U.S. small business commercial TDRs are comprised of renegotiated small business card loans and small business loans. The renegotiated small business card loans are not classified as nonperforming as they are charged off no later than the end of the month in which the loan becomes 180 days past due. For more information on TDRs, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements.

Table 41 Commercial Troubled Debt Restructurings
June 30, 2017 December 31, 2016
(Dollars
in Total Nonperforming Performing Total Nonperforming Performing millions)

| $\begin{aligned} & \text { U.S. } \\ & \text { commercial } \$ 1,502 \end{aligned}$ | \$ | 549 | \$ 953 | \$ 1,860 | \$ | 720 | \$ 1,140 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Commercial 6 real estate | 77 |  | 39 | 140 | 45 |  | 95 |
| Commercial lease 7 | 5 |  | 2 | 4 | 2 |  | 2 |
| financing |  |  |  |  |  |  |  |
| Non-U.S. 219 | 12 |  | 207 | 308 | 25 |  | 283 |
| 1,844 | 643 |  | 1,201 | 2,312 | 792 |  | 1,520 |
| U.S. <br> small <br> business 18 <br> commercial | 4 |  | 14 | 15 | 2 |  | 13 |
| Total commercial |  |  |  |  |  |  |  |
| troubled \$1,862 | \$ | 647 | \$ 1,215 | \$2,327 | \$ | 794 | \$ 1,533 |

debt
restructurings
Industry Concentrations
Table 42 presents commercial committed and utilized credit exposure by industry and the total net credit default protection purchased to cover the funded and unfunded portions of certain credit exposures. Our commercial credit exposure is diversified across a broad range of industries. Total commercial committed exposure decreased $\$ 3.2$ billion, or less than one percent, during the six months ended June 30, 2017 to $\$ 947.9$ billion. The decrease in commercial committed exposure was concentrated in the Healthcare Equipment and Services sector and the Banking sector. Decreases were partially offset by higher exposure to the Retailing sector and the Food, Beverage and Tobacco sector.
Industry limits are used internally to manage industry concentrations and are based on committed exposure that is allocated on an industry-by-industry basis. A risk management framework is in place to set and approve industry limits as well as to provide ongoing monitoring. The Management Risk Committee oversees industry limit governance.
Diversified Financials, our largest industry concentration, with committed exposure of $\$ 126.3$ billion, increased $\$ 1.7$ billion, or one percent, during the six months ended June 30, 2017. The
increase primarily reflected an increase in exposure to several counterparties.
Real estate, our second largest industry concentration with committed exposure of $\$ 85.1$ billion, increased $\$ 1.5$ billion, or two percent, during the six months ended June 30, 2017. For more information on the commercial real estate and related portfolios, see Commercial Portfolio Credit Risk Management - Commercial Real Estate on page 50.

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Retailing committed exposure increased $\$ 5.9$ billion, or nine percent, to $\$ 74.4$ billion during the six months ended June 30, 2017. The increase in committed exposure occurred primarily in the Internet and Catalog retail sector. Our energy-related committed exposure decreased $\$ 2.4$ billion, or six percent, to $\$ 36.9$ billion during the six months ended June 30, 2017. Energy sector net charge-offs were $\$ 26$ million during the six months ended June 30, 2017 compared to $\$ 181$ million for the same period in 2016. Energy sector reservable criticized exposure decreased $\$ 1.2$ billion to $\$ 4.4$ billion during the six months ended June 30, 2017 due to improvement in credit quality of some borrowers coupled with exposure reductions and fewer new criticized exposures. The energy allowance for credit losses decreased $\$ 115$ million to $\$ 810$ million during the six months ended June 30, 2017.

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Table 42 Commercial Credit Exposure by Industry ${ }^{(1)}$

| Commercial | Total Commercial |
| :--- | :--- |
| Utilized | Committed ${ }^{(2)}$ |

(Dollars in
millions)
20172016
$\begin{aligned} & \text { Diversified } \\ & \text { financials }\end{aligned} 80,979 \quad \$ 81,156 \quad \$ 126,267 \quad \$ 124,535$
Real
estate ${ }^{(3)} 63,480 \quad 61,203 \quad 85,115 \quad 83,658$

Retailing 42,841 41,630 74,396 68,507
$\begin{array}{llll}\text { Capital } & 34,373 & 34,278 & 66,302\end{array} 64,202$
goods
Healthcare
equipment
and 36,749 $\quad 37,656 \quad 56,365 \quad 64,663$
services
Government
and
public
46,057
education
Materials 22,964 22,578 45,851 44,357
Banking 38,117 39,877 42,675 47,799
Food,

| beverage | 22,211 | 19,669 | 42,421 |
| :--- | :--- | :--- | :--- |

and
$22,211 \quad 19,66$
42,421 37,145
tobacco
$\begin{array}{lll}\text { Consumer } \\ \text { 27,061 } & \text { 27,413 } & 42,383 \\ \text { services }\end{array}$ 42,523
Energy $\quad 17,044 \quad 19,686 \quad 36,878 \quad 39,231$
Commercial

| services | 21,336 | 21,241 | 34,137 | 35,360 |
| :--- | :--- | :--- | :--- | :--- |

and
supplies
Transporta00,917 19,805 28,886 27,483
Utilities 12,176 11,349 27,273 27,140
$\begin{array}{lllll}\text { Media } & 13,195 & 13,419 & 24,911 & 27,116\end{array}$
$\begin{array}{llll}\begin{array}{l}\text { Individuals } \\ \text { and trusts }\end{array} \text { 1,619 } & 16,364 & 22,971 & 21,764\end{array}$
Pharmaceuticals

and | 5,670 | 5,539 | 18,936 | 18,910 |
| :--- | :--- | :--- | :--- | :--- |

biotechnology
Software
and $\quad 9,164 \quad 7,991 \quad 18,361 \quad 19,790$
services
Technology,846 7,793 18,092 18,429
hardware
and
equipment
Telecommunication services
Consumer
$\begin{array}{lllll}\text { durables } & 6,400 & 6,042 & 12,161 & 11,460 \\ \text { and } & & \end{array}$
apparel
Insurance,
including 6,049 $\quad 7,406 \quad 11,938 \quad 13,936$
monolines
Automobiles

and | 5,391 | 5,459 | 11,546 | 12,969 |
| :--- | :--- | :--- | :--- | :--- |

components
Food and

| staples | 4,771 | 4,795 | 9,265 | 8,869 |
| :--- | :--- | :--- | :--- | :--- |

retailing
Religious
and social4,259 4,423 6,071 6,252
organizations
$\begin{array}{lllll}\text { Other } & 10,458 & 6,109 & 15,461 & 13,432\end{array}$
Total
commercial
credit
exposure $\$ 583,364 \$ 574,892 \quad \$ 947,892 \quad \$ 951,081$
by
industry
Net credit
default
protection
purchased

$$
\$(1,875) \$(3,477 \quad)
$$

on total
commitments (4)
${ }^{(1)}$ Includes U.S. small business commercial exposure.
Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g.,
${ }^{(2)}$ syndicated or participated) to other financial institutions. The distributed amounts were $\$ 11.6$ billion and $\$ 12.1$ billion at June 30, 2017 and December 31, 2016.
Industries are viewed from a variety of perspectives to best isolate the perceived risks. For purposes of this table,
${ }^{(3)}$ the real estate industry is defined based on the borrowers' or counterparties' primary business activity using operating cash flows and primary source of repayment as key factors.
(4) Represents net notional credit protection purchased. For additional information, see Commercial Portfolio Credit Risk Management - Risk Mitigation below.

## Risk Mitigation

We purchase credit protection to cover the funded portion as well as the unfunded portion of certain credit exposures. To lower the cost of obtaining our desired credit protection levels, we may add credit exposure within an industry, borrower or counterparty group by selling protection.
At June 30, 2017 and December 31, 2016, net notional credit default protection purchased in our credit derivatives portfolio to hedge our funded and unfunded exposures for which we elected the fair value option, as well as certain other credit exposures, was $\$ 1.9$ billion and $\$ 3.5$ billion. We recorded net losses of $\$ 16$ million and $\$ 47$ million for the three and six months ended June 30, 2017 compared to net losses of $\$ 125$ million and $\$ 328$ million for the same periods in 2016 on these positions. The gains and losses on these instruments were offset by gains and losses on the related exposures. The Value-at-Risk (VaR) results for these
exposures are included in the fair value option portfolio information in Table 50. For additional information, see Trading Risk Management on page 60.
Tables 43 and 44 present the maturity profiles and the credit exposure debt ratings of the net credit default protection portfolio at June 30, 2017 and December 31, 2016.

Table $43 \begin{aligned} & \text { Net Credit Default } \\ & \text { Protection by Maturity }\end{aligned}$
June 30 December 31
20172016
Less than
or equal 38 \% 56 \%
to one
year
Greater
than one
year and
less than 6041
or equal
to five
years
Greater
than five 23
years
Total net
credit
default $\quad 100 \% 100 \quad \%$
protection
Bank of America 54

Table 44 Net Credit Default Protection by Credit Exposure Debt Rating
$\begin{array}{ll}\text { June 30, } 2017 & \text { December 31, } \\ 2016\end{array}$
(Dollars Net Percent Net Percent in Notional of Notional of millions) ${ }^{(1)}$ Total (1) Total Ratings ${ }^{(2,}$
3)
A $\quad \$(115) 6.1 \quad \% ~ \$(135) 3.9 \quad \%$
BBB (585 ) $31.2 \quad(1,884) 54.2$
BB (644 ) 34.3 (871 ) 25.1
B (465 ) $24.8 \quad(477) 13.7$

CCC and (52 ) 2.8 (81 ) 2.3
NR ${ }^{(4)} \quad(14 \quad) 0.8 \quad(29) 0.8$
Total net
credit
default $\$(1,875) 100.0 \% \$(3,477) 100.0 \%$
protection
${ }^{(1)}$ Represents net credit default protection purchased.
${ }^{(2)}$ Ratings are refreshed on a quarterly basis.
${ }^{(3)}$ Ratings of BBB- or higher are considered to meet the definition of investment grade.
${ }^{(4)} \mathrm{NR}$ is comprised of index positions held and any names that have not been rated.
In addition to our net notional credit default protection purchased to cover the funded and unfunded portion of certain credit exposures, credit derivatives are used for market-making activities for clients and establishing positions intended to profit from directional or relative value changes. We execute the majority of our credit derivative trades in the OTC market with large, multinational financial institutions, including broker-dealers and, to a lesser degree, with a variety of other investors. Because these
transactions are executed in the OTC market, we are subject to settlement risk. We are also subject to credit risk in the event that these counterparties fail to perform under the terms of these contracts. In most cases, credit derivative transactions are executed on a daily margin basis. Therefore, events such as a credit downgrade, depending on the ultimate rating level, or a breach of credit covenants would typically require an increase in the amount of collateral required by the counterparty, where applicable, and/or allow us to take additional protective measures such as early termination of all trades.
Table 45 presents the total contract/notional amount of credit derivatives outstanding and includes both purchased and written credit derivatives. The credit risk amounts are measured as net asset exposure by counterparty, taking into consideration all contracts with the counterparty. For more information on our written credit derivatives, see Note 2 Derivatives to the Consolidated Financial Statements.
The credit risk amounts discussed above and presented in Table 45 take into consideration the effects of legally enforceable master netting agreements while amounts disclosed in Note 2 - Derivatives to the Consolidated Financial Statements are shown on a gross basis. Credit risk reflects the potential benefit from offsetting exposure to non-credit derivative products with the same counterparties that may be netted upon the occurrence of certain events, thereby reducing our overall exposure.

Table 45 Credit Derivatives

| June 30, 2017 | $\begin{aligned} & \text { December 31, } \\ & 2016 \end{aligned}$ |
| :---: | :---: |
| (Dollars Contract/ Credit <br> in Notional Risk <br> millions)  | Contract/ Credit Notional Risk |
| Purchased credit derivatives: |  |
| Credit <br> default \$531,117 \$2,528 <br> swaps | \$603,979 \$2,732 |
| Total return 33,670 226 swaps/other | 21,165 433 |
| Total $\begin{aligned} & \text { purchased } \\ & \text { credit } \\ & \text { derivatives } \end{aligned}$ | \$625,144 \$3,165 |
| Written credit derivatives: |  |
| $\begin{aligned} & \text { Credit } \\ & \text { default } \\ & \text { swaps } \end{aligned}$ | \$614,355 n/a |
| Total return 37,761 n/a swaps/other | $25,354 \quad \mathrm{n} / \mathrm{a}$ |
| Total $\begin{aligned} & \text { written } \\ & \text { credit }\end{aligned} \quad \$ 559,350 \mathrm{n} / \mathrm{a}$ derivatives n/a = not applicable | \$639,709 n/a |
| Counterparty Credit Risk Val | luation Adjustments |
| We record counterparty credit protection purchased, in orde calculate CVA based on a mo in market spreads and non-cr into consideration credit miti information, see Note 2 - De | it risk valuation adjustments on certain derivative assets, including our credit default er to properly reflect the credit risk of the counterparty, as presented in Table 46. We odeled expected exposure that incorporates current market risk factors including changes redit related market factors that affect the value of a derivative. The exposure also takes igants such as legally enforceable master netting agreements and collateral. For additional derivatives to the Consolidated Financial Statements. |
| We enter into risk manageme risk in CVA with credit defau interest rate swaps. In certain | ent activities to offset market driven exposures. We often hedge the counterparty spread ult swaps (CDS). We hedge other market risks in CVA primarily with currency and instances, the net-of-hedge amounts in the following table move |
| in the same direction as the gross amount or may move in the opposite direction. This movement is a consequence of the complex interaction of the risks being hedged, resulting in limitations in the ability to perfectly hedge all of the market exposures at all times. |  |

Table 46 Credit Valuation Gains and Losses
Three Months Ended June 30
Gains ..... 2017
2016(Dollars
in GrossHedge Net Gross HedgeNet
millions)
Credit
valuation \$97 $\$(45) \$ 52 \$(26) \$ 59 \quad \$ 33$
Six Months Ended June 30
2017 ..... 2016GrossHedge Net Gross HedgeNetCreditCredit
valuation $\$ 258 \$(180) \$ 78 \$(235) \$ 320 \$ 85$
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## Non-U.S. Portfolio

Our non-U.S. credit and trading portfolios are subject to country risk. We define country risk as the risk of loss from unfavorable economic and political conditions, currency fluctuations, social instability and changes in government policies. A risk management framework is in place to measure, monitor and manage non-U.S. risk and exposures. In addition to the direct risk of doing business in a country, we also are exposed to indirect country risks (e.g., related to the collateral received on secured financing transactions or related to client clearing activities). These indirect exposures are managed in the normal course of business through credit, market and operational risk governance, rather than through country risk governance.
Table 47 presents our 20 largest non-U.S. country exposures as of June 30, 2017. These exposures accounted for 88 percent of our total non-U.S. exposure at both June 30, 2017 and December 31, 2016. Net country exposure for these 20 countries decreased $\$ 4.2$ billion in the six months ended June 30, 2017 primarily driven by decreases in the U.K., Switzerland, Japan, Italy and Brazil, partially offset by increases in the Netherlands, South Korea and Australia. On a product basis, the decrease was driven by the sale of the non-U.S. consumer credit card business, lower unfunded commitments in Switzerland, and lower funded commitments in Japan, Italy and Brazil. These reductions were
partially offset by higher funded commitments in the Netherlands and Australia, and increased securities exposure in South Korea.
Non-U.S. exposure is presented on an internal risk management basis and includes sovereign and non-sovereign credit exposure, securities and other investments issued by or domiciled in countries other than the U.S.
Funded loans and loan equivalents include loans, leases, and other extensions of credit and funds, including letters of credit and due from placements, which have not been reduced by collateral, hedges or credit default protection. Unfunded commitments are the undrawn portion of legally binding commitments related to loans and loan equivalents.
Net counterparty exposure includes the fair value of derivatives, including the counterparty risk associated with CDS, and secured financing transactions.
Securities and other investments are carried at fair value and long securities exposures are netted against short exposures with the same underlying issuer to, but not below, zero (i.e., negative issuer exposures are reported as zero). Net country exposure represents country exposure less hedges and credit default protection purchased, net of credit default protection sold. For more information on our non-U.S. credit and trading portfolios, see Non-U.S. Portfolio in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.

Table 47 Top 20 Non-U.S. Countries Exposure

| (Dollars in millions) | Funded <br> Loans and <br> Loan <br> Equivalents | Unfunded <br> Loan <br> Commitments | Net <br> Counterparty Exposure | Securities/ <br> Other <br> Investments | Country <br> Exposure <br> at June 30 <br> 2017 | Hedges and Credit Default Protection | Net <br> Country <br> Exposure <br> at June 30 <br> 2017 | Increase <br> (Decrease) <br> from <br> December 31 <br> 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| United <br> Kingdom | \$ 20,535 | \$ 15,186 | \$ 5,966 | \$ 1,410 | \$43,097 | \$ (4,527 | ) \$38,570 | \$ (9,163 |
| Germany | 13,077 | 7,930 | 1,877 | 3,709 | 26,593 | ( 3,360 ) | ) 23,233 | 855 |
| Canada | 7,685 | 7,637 | 2,485 | 1,990 | 19,797 | (817 ) | ) 18,980 | 206 |
| Japan | 9,599 | 558 | 2,030 | 3,207 | 15,394 | (1,751 ) | ) 13,643 | (1,368 |
| Brazil | 8,217 | 363 | 1,254 | 2,924 | 12,758 | (324) | ) 12,434 | (1,232 |
| France | 4,516 | 5,603 | 2,230 | 4,618 | 16,967 | (4,842 ) | ) 12,125 | 1,431 |
| China | 10,153 | 833 | 490 | 949 | 12,425 | (387 ) | ) 12,038 | 1,153 |
| Australia | 5,664 | 2,922 | 453 | 1,782 | 10,821 | (388) | ) 10,433 | 1,510 |
| India | 5,915 | 211 | 374 | 3,840 | 10,340 | (856 ) | ) 9,484 | 256 |
| Netherlan | 1\$9591 | 3,600 | 718 | 2,322 | 11,231 | (1,802 ) | ) 9,429 | 2,031 |
|  | 7,136 | 144 | 605 | 765 | 8,650 | (53 ) | ) 8,597 | 1,118 |

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| South Korea | 496 | 1,052 | 2,159 | 8,568 | (553 | ) 8,015 | 1,909 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Singapore2,885 | 352 | 1,112 | 2,264 | 6,613 | (74 | ) 6,539 | 1,121 |
| Mexico 3,716 | 1,364 | 230 | 896 | 6,206 | (432 | ) 5,774 | 1,290 |
| Switzerland 168 | 3,422 | 277 | 154 | 7,021 | (1,532 | ) 5,489 | (4,157 |
| Italy 1,289 | 1,317 | 515 | 886 | 4,007 | (1,176 | ) 2,831 | (1,256 |
| Spain 1,650 | 996 | 290 | 863 | 3,799 | (1,026 | ) 2,773 | 227 |
| Turkey 2,621 | 50 | 32 | 73 | 2,776 | (207 | ) 2,569 | (121 |
| Belgium 1,031 | 688 | 119 | 796 | 2,634 | (242 | ) 2,392 | 466 |
| United |  |  |  |  |  |  |  |
| Arab 1,968 | 111 | 284 | 2 | 2,365 | (93 | ) 2,272 | (471 |
| Emirates |  |  |  |  |  |  |  |
| Total top |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |
| non-U.S. \$ 120,277 | \$ 53,783 | \$ 22,393 | \$ 35,609 | \$ 232,062 | \$ 24,442 | ) \$207,620 | \$ (4,195 |

countries
exposure
A number of economic conditions and geopolitical events have given rise to risk aversion in certain emerging markets. Our two largest emerging market country exposures at June 30, 2017 were Brazil and China. At June 30, 2017, net exposure to Brazil was $\$ 12.4$ billion, concentrated in sovereign securities, oil and gas companies and commercial banks. At June 30, 2017, net exposure to China was $\$ 12.0$ billion, concentrated in large state-owned companies, subsidiaries of multinational corporations and commercial banks.

The outlook for policy direction and therefore economic performance in the EU remains uncertain as a consequence of reduced political cohesion among EU countries. In addition, the results of the accelerated elections in the U.K. in June 2017 have increased uncertainty on the U.K.'s ability to negotiate its exit from the EU in a favorable manner. Our largest EU country exposure at June 30, 2017 was the U.K. At June 30, 2017, net exposure to the U.K. was $\$ 38.6$ billion, concentrated in multinational corporations and sovereign clients. For additional information, see

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Executive Summary - Second Quarter 2017 Economic and Business Environment on page 3. Provision for Credit Losses
The provision for credit losses decreased $\$ 250$ million to $\$ 726$ million, and $\$ 412$ million to $\$ 1.6$ billion for the three and six months ended June 30, 2017 compared to the same periods in 2016. The provision for credit losses was $\$ 182$ million and $\$ 281$ million lower than net charge-offs for the three and six months ended June 30, 2017, resulting in a reduction in the allowance for credit losses. This compared to a reduction of $\$ 9$ million and $\$ 80$ million in the allowance for credit losses for the three and six months ended June 30, 2016.
The provision for credit losses for the consumer portfolio decreased $\$ 127$ million to $\$ 606$ million, and increased $\$ 243$ million to $\$ 1.4$ billion for the three and six months ended June 30,2017 compared to the same periods in 2016. The decrease for the three-month period was primarily driven by improvement in the home equity and residential mortgage portfolios due to increased home prices and lower nonperforming loans. The increase for the six-month period was primarily due to portfolio seasoning and loan growth in the U.S. credit card portfolio. Included in the provision is a benefit of $\$ 24$ million and an expense of $\$ 44$ million related to the PCI loan portfolio for the three and six months ended June 30, 2017 compared to a benefit of $\$ 12$ million and $\$ 89$ million for the same periods in 2016. The provision for credit losses for the commercial portfolio, including unfunded lending commitments, decreased $\$ 123$ million to $\$ 120$ million, and $\$ 655$ million to $\$ 183$ million for the three and six months ended June 30, 2017 compared to the same periods in 2016 driven by reductions in energy exposures.

## Allowance for Credit Losses

Allowance for Loan and Lease Losses
The allowance for loan and lease losses is comprised of two components. The first component covers nonperforming commercial loans and TDRs. The second component covers loans and leases on which there are incurred losses that are not yet individually identifiable, as well as incurred losses that may not be represented in the loss forecast models. We evaluate the adequacy of the allowance for loan and lease losses based on the total of these two components. The allowance for loan and lease losses excludes LHFS and loans accounted for under the fair value option as the fair value reflects a credit risk component. For more information on the allowance for loan and lease losses, see Allowance for Credit Losses in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
During the three and six months ended June 30, 2017, the factors that impacted the allowance for loan and lease losses included improvements in the credit quality of the consumer real estate portfolios driven by continuing improvements in the U.S. economy and labor markets, proactive credit risk management initiatives and the impact of high credit quality originations. Evidencing the improvements in the U.S. economy and labor markets are downward unemployment trends and increases in home prices. In addition to these improvements, in the consumer
portfolio, nonperforming consumer loans decreased $\$ 722$ million in the six months ended June 30, 2017 as returns to performing status, charge-offs, paydowns and loan sales continued to outpace new nonaccrual loans. During the six months ended June 30, 2017, the allowance for loan and lease losses in the commercial portfolio reflected decreased energy reserves primarily driven by reductions in energy exposures.
The allowance for loan and lease losses for the consumer portfolio, as presented in Table 49, was $\$ 5.7$ billion at June 30, 2017, a decrease of $\$ 527$ million from December 31, 2016. The decrease was primarily in the home equity portfolio and the non-U.S. card portfolio which was sold on June 1, 2017, partially offset by an increase in the U.S. credit card portfolio. The reductions in the home equity portfolio were due to improved home prices, lower nonperforming loans and a decrease in loan balances. The increase in the U.S. credit card portfolio was driven by portfolio seasoning and loan growth.
The allowance for loan and lease losses for the commercial portfolio, as presented in Table 49, was $\$ 5.2$ billion at June 30, 2017, a decrease of $\$ 78$ million from December 31, 2016 driven by decreased energy reserves due to reductions in the higher risk energy sub-sectors. Commercial utilized reservable criticized exposure decreased to $\$ 15.6$ billion at June 30, 2017 from $\$ 16.3$ billion (to 3.13 percent from 3.35 percent of total commercial utilized reservable exposure) at December 31, 2016, largely due to net upgrades and paydowns in the energy portfolio. Nonperforming commercial loans decreased to $\$ 1.5$ billion at June 30, 2017 from $\$ 1.7$ billion (to 0.33 percent from 0.38 percent of outstanding commercial loans excluding loans accounted for under the fair value option) at December 31, 2016. See Tables 35, 36 and 38 for additional details on key commercial credit statistics.

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The allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.20 percent at June 30, 2017 compared to 1.26 percent at December 31, 2016. The June 30, 2017 and December 31, 2016 ratios above include the PCI loan portfolio. Excluding the PCI loan portfolio, the allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.17 percent and 1.24 percent at June 30, 2017 and December 31, 2016.

Reserve for Unfunded Lending Commitments
In addition to the allowance for loan and lease losses, we also estimate probable losses related to unfunded lending commitments such as letters of credit, financial guarantees, unfunded bankers' acceptances and binding loan commitments, excluding commitments accounted for under the fair value option. For more information on the reserve for unfunded lending commitments, see Allowance for Credit Losses in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
The reserve for unfunded lending commitments was $\$ 757$ million at June 30, 2017, a decrease of $\$ 5$ million from December 31, 2016.
Table 48 presents a rollforward of the allowance for credit losses, which includes the allowance for loan and lease losses and the reserve for unfunded lending commitments, for the three and six months ended June 30, 2017 and 2016.

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Table 48 Allowance for Credit Losses

| (Dollars in millions) | Three Months Ended June 30 |  | Six Months Ended June 30 |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 2017 | 2016 | 2017 | 2016 |
| Allowance for loan and lease losses, beginning of period | \$11,112 | \$12,069 | \$11,237 | \$ 12,234 |
| Loans and leases charged off |  |  |  |  |
| Residential mortgage | (45 | ) (88 | ) (106 | ) (273 |
| Home equity | (153 | ) (216 | ) $(296$ | ) (409 |
| U.S. credit card | (753 | ) (680 | ) (1,471 | ) (1,373 |
| Non-U.S. credit card ${ }^{(1)}$ | (44 | ) (63 | ) (103 | ) (124 |
| Direct/Indirect consumer | (107 | ) (88 | ) (221 | ) (189 |
| Other consumer | (50 | ) (53 | ) (105 | ) (110 |
| Total consumer charge-offs | (1,152 | ) $(1,188$ | ) $(2,302$ | ) $(2,478$ |
| U.S. commercial ${ }^{(2)}$ | (141 | ) (124 | ) $(278$ | ) $(282$ |
| Commercial real estate | (8) | ) (3 | ) $(8$ | ) $(8$ |
| Commercial lease financing | (3) | ) (17 | ) (6 | ) (17 |
| Non-U.S. commercial | (46 | ) (46 | ) (66 | ) (89 |
| Total commercial charge-offs | (198 | ) (190 | ) (358 | ) (396 |
| Total loans and leases charged off | (1,350 | ) (1,378 | ) $(2,660$ | ) $(2,874$ |
| Recoveries of loans and leases previously charged off |  |  |  |  |
| Residential mortgage | 64 | 54 | 108 | 148 |
| Home equity | 103 | 90 | 182 | 171 |
| U.S. credit card | 113 | 107 | 225 | 213 |
| Non-U.S. credit card | 13 | 17 | 28 | 33 |
| Direct/Indirect consumer | 75 | 65 | 141 | 132 |
| Other consumer | 33 | 6 | 40 | 15 |
| Total consumer recoveries | 401 | 339 | 724 | 712 |
| U.S. commercial ${ }^{(3)}$ | 36 | 46 | 77 | 87 |
| Commercial real estate | 3 | 5 | 7 | 16 |
| Commercial lease financing | 2 | 2 | 5 | 4 |
| Non-U.S. commercial | - | 1 | 5 | 2 |
| Total commercial recoveries Total recoveries of loans and leases previously charged off | 41 | 54 | 94 | 109 |
|  | 442 | 393 | 818 | 821 |
| Net charge-offs | (908 | ) (985 | ) (1,842 | ) $(2,053$ |
| Write-offs of PCI loans | (55 | ) (82 | ) (88 | ) (187 |
| Provision for loan and lease losses | 726 | 952 | 1,566 | 1,968 |
| Other ${ }^{(4)}$ | - | (117 | ) 2 | (125 |
| Allowance for loan and lease losses, June 30 | 10,875 | 11,837 | 10,875 | 11,837 |
| Reserve for unfunded lending commitments, beginning of period | 757 | 627 | 762 | 646 |
| Provision for unfunded lending commitments | - | 24 | (5 | ) 5 |
| Other ${ }^{(4)}$ | - | 99 | - | 99 |
|  | 757 | 750 | 757 | 750 |

Reserve for unfunded lending
commitments, June 30
Allowance for credit losses, June $30 \quad \$ 11,632 \quad \$ 12,587 \quad \$ 11,632 \quad \$ 12,587$
${ }_{(1)}$ Represents net charge-offs of non-U.S. credit card loans, which were previously included in assets of business held for sale. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
(2) Includes U.S. small business commercial charge-offs of $\$ 64$ million and $\$ 128$ million for the three and six months ended June 30, 2017 compared to $\$ 61$ million and $\$ 123$ million for the same periods in 2016.
(3) Includes U.S. small business commercial recoveries of $\$ 11$ million and $\$ 23$ million for the three and six months ended June 30, 2017 compared to $\$ 11$ million and $\$ 21$ million for the same periods in 2016.
(4) Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.

[^11]Table 48 Allowance for Credit Losses (continued)
(Dollars in millions)
Three Months Ended June 30
20172016
$\$ 909,341 \quad \$ 894,493 \quad \$ 909,341 \quad \$ 894,493$
Loans and leases outstanding at June $30{ }^{(5)}$
Six Months Ended June
30
20172016

Allowance for loan and lease losses as a percentage of total loans and leases outstanding at $1.20 \quad \% \quad 1.32 \quad \% \quad 1.20 \quad \% \quad 1.32 \quad \%$ June $30{ }^{(5)}$
Consumer allowance for loan and lease losses as a
$\begin{array}{lllll}\text { percentage of total consumer loans and leases } & 1.28 & 1.45 & 1.28 & 1.45\end{array}$
outstanding at June $30^{(6)}$
Commercial allowance for loan and lease losses as
$\begin{array}{lllll}\text { a percentage of total commercial loans and leases } & 1.12 & 1.19 & 1.12 & 1.19\end{array}$
outstanding at June $30{ }^{(7)}$
Average loans and leases outstanding (5) $\quad \$ 907,421 \quad \$ 890,603 \quad \$ 907,005 \quad \$ 888,130$
Annualized net charge-offs as a percentage of average loans and leases outstanding $(5,8)$
$0.40 \quad \% \quad 0.44 \quad \% \quad 0.41 \quad \% \quad 0.46 \quad \%$

Annualized net charge-offs and PCI write-offs as a
$\begin{array}{lllll}\text { percentage of average loans and leases } & 0.43 & 0.48 & 0.43 & 0.51\end{array}$
outstanding (5)
Allowance for loan and lease losses as a
$\begin{array}{lllll}\text { percentage of total nonperforming loans and leases } 160 & 142 & 160 & 142\end{array}$
at June $30{ }^{(5,9)}$
$\begin{array}{llllll}\text { Ratio of the allowance for loan and lease losses at } & 2.99 & 2.99 & 2.93 & 2.87 \\ \text { June } 30 \text { to annualized net charge-offs (8) } & & & \end{array}$
Ratio of the allowance for loan and lease losses at
$\begin{array}{llllll}\text { June } 30 \text { to annualized net charge-offs and PCI } & 2.82 & 2.76 & 2.79 & 2.63\end{array}$
write-offs
Amounts included in allowance for loan and lease
$\begin{array}{lllll}\text { losses for loans and leases that are excluded from } & \$ 3,782 \quad \$ 4,087 & \$ 3,782 & \$ 4,087\end{array}$
nonperforming loans and leases at June $30{ }^{(10)}$
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease $104 \quad \% \quad 93 \quad \% \quad 104 \quad \% \quad 93 \quad \%$
losses for loans and leases that are excluded from
nonperforming loans and leases at June $30(5,10)$
Loan and allowance ratios excluding PCI loans
and the related valuation allowance: (11)
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at $1.17 \quad \% \quad 1.29 \quad \% \quad 1.17 \quad \% \quad 1.29 \quad \%$ June $30^{(5)}$
Consumer allowance for loan and lease losses as a
$\begin{array}{lllll}\text { percentage of total consumer loans and leases } & 1.23 & 1.38 & 1.23 & 1.38\end{array}$
outstanding at June $30{ }^{(6)}$
Annualized net charge-offs as a percentage of average loans and leases outstanding (5)

| 0.41 | 0.45 | 0.42 | 0.47 |
| :--- | :--- | :--- | :--- |
| 154 | 135 | 154 | 135 |

Allowance for loan and lease losses as a
percentage of total nonperforming loans and leases at June $30{ }^{(5,9)}$
Ratio of the allowance for loan and lease losses at June 30 to annualized net charge-offs
$2.88 \quad 2.85$
2.83
2.74

Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option of

## (5)

 $\$ 7.3$ billion and $\$ 8.7$ billion at June 30, 2017 and 2016. Average loans accounted for under the fair value option were $\$ 7.3$ billion and $\$ 7.4$ billion for the three and six months ended June 30,2017 compared to $\$ 9.1$ billion and $\$ 8.2$ billion for the same periods in 2016.(6) Excludes consumer loans accounted for under the fair value option of $\$ 1.0$ billion and $\$ 1.8$ billion at June 30,2017 and 2016.
(7) Excludes commercial loans accounted for under the fair value option of $\$ 6.3$ billion and $\$ 6.8$ billion at June 30 , 2017 and 2016.
Net charge-offs exclude $\$ 55$ million and $\$ 88$ million of write-offs in the PCI loan portfolio for the three and six
(8) months ended June 30, 2017 compared to $\$ 82$ million and $\$ 187$ million for the same periods in 2016. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management - Purchased Credit-impaired Loan Portfolio on page 45.
(9) For more information on our definition of nonperforming loans, see pages 47 and 52.
(10) Primarily includes amounts allocated to U.S. credit card and unsecured consumer lending portfolios in Consumer Banking, PCI loans and the non-U.S. credit card portfolio in All Other.
(11) For more information on the PCI loan portfolio and the valuation allowance for PCI loans, see Note $4-$ Outstanding Loans and Leases and Note 5 - Allowance for Credit Losses to the Consolidated Financial Statements.

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For reporting purposes, we allocate the allowance for credit losses across products as presented in Table 49.
Table 49 Allocation of the Allowance for Credit Losses

June 30, 2017
$\begin{array}{lll}\text { (Dollars } & \text { Percent } & \text { Percent of } \\ \text { in } & \text { Amount of } & \text { Loans and } \\ \text { millions) } & \text { Total } & \text { Leases } \\ & & \text { Outstanding (1) }\end{array}$

December 31, 2016

|  | Percent | Percent of <br> Amount <br> of |
| :--- | :--- | :--- |
|  | Toans and |  |
| Total | Leases |  |
| Outstanding (1) |  |  |

Allowance
for loan
and lease
losses
$\begin{array}{lllllllll}\begin{array}{l}\text { Residential } \\ \text { mortgage }\end{array} & 801 & 8.28 & \% & 0.46 & \% & \$ 1,012 & 8.82 & \% \\ 0.53 & \%\end{array}$
$\begin{array}{lllllll}\begin{array}{lll}\text { Home } \\ \text { equity }\end{array} & 1,408 & 12.95 & 2.27 & 1,738 & 15.14 & 2.62\end{array}$
U.S.
$\begin{array}{lllllll}\text { credit } & 3,063 & 28.17 & 3.37 & 2,934 & 25.56 & 3.18\end{array}$
card
Non-U.S.

| credit | - | - | 243 | 2.12 | 2.64 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

card

| Direct/Indireçt <br> consumer | 2.51 | 0.29 | 244 | 2.13 | 0.26 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Other <br> consumer 50 | 0.46 | 1.84 | 51 | 0.44 | 2.01 |


| Total <br> consumer | 5,695 | 52.37 | 1.28 | 6,222 | 54.21 |
| :--- | :--- | :--- | :--- | :--- | :--- |

U.S.

| commerciă ${ }^{3} 250$ | 29.89 | 1.12 | 3,326 | 28.97 | 1.17 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| Commerciaa <br> real estate | 849 | 8.73 | 1.60 | 920 | 8.01 |
| :--- | :--- | :--- | :--- | :--- | :--- | 1.60

Commercial

| lease | 151 | 1.38 | 0.69 | 138 | 1.20 | 0.62 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

financing
Non-U.S.
commercial
Total

| commerciabl180 | 47.63 | 1.12 | 5,258 | 45.79 | 1.16 |
| :--- | :--- | :--- | :--- | :--- | :--- |

(3)

Allowance
for loan
$\begin{array}{llllll}\text { for loan } \\ \text { and lease }\end{array} 10,875 \quad 100.00 \% 1.20 \quad 11,480 \quad 100.00 \% 1.26$
losses (4)
Less: — (243 )
Allowance
included
in assets
of
business
held for
sale ${ }^{(5)}$
Total
allowance
for loan 10,875
11,237
and lease
losses
Reserve
for
unfunded 757
762
lending
commitments
Allowance
for credit \$11,632
\$11,999
losses
Ratios are calculated as allowance for loan and lease losses as a percentage of loans and leases outstanding excluding loans accounted for under the fair value option. Consumer loans accounted for under the fair value option included residential mortgage loans of $\$ 666$ million and $\$ 710$ million and home equity loans of $\$ 369$ million and $\$ 341$ million at June 30, 2017 and December 31, 2016. Commercial loans accounted for under the fair value option included U.S. commercial loans of $\$ 3.2$ billion and $\$ 2.9$ billion at June 30, 2017 and December 31, 2016 and includes non-U.S. commercial loans of $\$ 3.1$ billion for both periods. Includes allowance for loan and lease losses for U.S. small business commercial loans of $\$ 417$ million and $\$ 416$ million at June 30, 2017 and December 31, 2016.
(3) Includes allowance for loan and lease losses for impaired commercial loans of $\$ 242$ million and $\$ 273$ million at June 30, 2017 and December 31, 2016.
(4) Includes $\$ 375$ million and $\$ 419$ million of valuation allowance presented with the allowance for loan and lease losses related to PCI loans at June 30, 2017 and December 31, 2016.

Represents allowance for loan and lease losses related to the non-U.S. credit card loan portfolio, which was
(5) included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
Market Risk Management
For more information on our market risk management process, see Market Risk Management in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
Trading Risk Management
To evaluate risk arising from trading activities, the Corporation focuses on the actual and potential volatility of revenues generated by individual positions as well as portfolios of positions.
VaR is a common statistic used to measure market risk as it allows the aggregation of market risk factors, including the effects of portfolio diversification. A VaR model simulates the value of a portfolio under a range of scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss a portfolio is not expected to exceed more than a certain number of times per period, based on a specified holding period, confidence level and window of historical data. We use one VaR model consistently across the trading portfolios and it uses a historical simulation approach based on a three-year window of historical data. Our primary VaR statistic is equivalent to a 99 percent confidence level. This means that for a VaR with a one-day holding period, there should not be losses in excess of VaR, on average, 99 out of 100 trading days. For more information on our trading risk management process, see Trading Risk Management in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
Table 50 presents the total market-based trading portfolio VaR which is the combination of the covered positions trading portfolio and the impact from less liquid trading exposures. Covered positions are defined by regulatory standards as trading assets
and liabilities, both on- and off-balance sheet, that meet a defined set of specifications. These specifications identify the most liquid trading positions which are intended to be held for a short-term horizon and where we are able to hedge the material risk elements in a two-way market. Positions in less liquid markets, or where there are restrictions on the ability to trade the positions, typically do not qualify as covered positions. Foreign exchange and commodity positions are always considered covered positions, except for structural foreign currency positions that are excluded with prior regulatory approval. In addition, Table 50 presents our fair value option portfolio, which includes substantially all of the funded and unfunded exposures for which we elect the fair value option, and their corresponding hedges. The fair value option portfolio combined with the total market-based trading portfolio VaR represents our total market-based portfolio VaR. Additionally, market risk VaR for trading activities as presented in Table 50 differs from VaR used for regulatory capital calculations due to the holding period being used. The holding period for VaR used for regulatory capital calculations is 10 days, while for the market risk VaR presented below it is one day. Both measures utilize the same process and methodology.
The total market-based portfolio VaR results in Table 50 include market risk to which we are exposed from all business segments, excluding CVA and DVA. The majority of this portfolio is within the Global Markets segment. Table 50 presents period-end, average, high and low daily trading VaR for the three months ended June 30, 2017, March 31, 2017 and June 30, 2016, as well as average daily trading VaR for the six months ended June 30, 2017 and 2016, using a 99 percent confidence level.

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Table 50 Market Risk VaR for Trading Activities

| Three Months Ended |  |  | Six Months <br> Ended |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
| June 30, 2017 | March 31, 2017 | June 30, 2016 | June 30 |
| $\begin{aligned} & \text { Period } \\ & \text { End } \end{aligned}$ | $\begin{aligned} & \text { Period } \\ & \text { End } \end{aligned}$ | $\begin{aligned} & \text { Period } \\ & \text { End } \end{aligned}$ | $\begin{aligned} & 20172016 \\ & \text { Averageverage } \end{aligned}$ |

(Dollars in
millions) End Average High ${ }^{(1)}$ Low ${ }^{(1)}$ Period End Average High ${ }^{(1)}$ Low ${ }^{(1)}$ Period End Average High ${ }^{(1)}$ Low ${ }^{(1)} \begin{aligned} & \text { End } \\ & \text { Averageverage }\end{aligned}$ $\begin{array}{llllllllllllllllll}\begin{array}{l}\text { Foreign } \\ \text { exchange }\end{array} \\ \$ 11 & \$ 13 & \$ 25 & \$ & 3 & \$ 23 & \$ 12 & \$ 23 & \$ & 5 & \$ 7 & \$ 9 & \$ 11 & \$ & 7 & \$ 13 & \$ 10\end{array}$ $\begin{array}{lllllllllllllll}\text { Interest } & 18 & 23 & 33 & 15 & 28 & 17 & 28 & 11 & 22 & 20 & 28 & 15 & 20 & 22 \\ \text { rate } & 17 & & & & & & \\ \text { Credit } & 26 & 25 & 29 & 22 & 26 & 26 & 29 & 22 & 28 & 31 & 34 & 27 & 26 & 31 \\ \text { Equity } & 19 & 18 & 26 & 13 & 24 & 19 & 30 & 14 & 21 & 20 & 30 & 12 & 19 & 20 \\ \text { Commodify } & 6 & 9 & 4 & 6 & 4 & 7 & 3 & 8 & 6 & 8 & 4 & 5 & 6\end{array}$ Portfolio Portfolio (45 ) (47 ) -
diversification Total
covered
$\begin{array}{llllllllllllll}\text { positions } 35 & 38 & 53 & 26 & 49 & 33 & 49 & 25 & 44 & 40 & 49 & 30 & 36 & 40\end{array}$
trading
portfolio
Impact

| from less |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| liquid | 3 | 5 | - | - | 10 | 5 | - | - | 4 | 6 | - | - | 5 | 4 |

exposures
Total
$\begin{array}{lllllllllllllll}\text { market-based } \\ \text { trading } & 48 & 43 & 60 & 32 & 59 & 38 & 59 & 28 & 48 & 46 & 58 & 35 & 41 & 44\end{array}$
portfolio
Fair
value

| value <br> option | 9 | 10 | 12 | 9 | 11 | 12 | 14 | 11 | 21 | 25 | 29 | 21 | 11 | 30 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

loans
Fair
$\begin{array}{llllllllllllllll}\begin{array}{l}\text { value } \\ \text { option }\end{array} & 6 & 5 & 7 & 4 & 6 & 6 & 7 & 5 & 11 & 12 & 15 & 10 & 6 & 15\end{array}$
hedges
Fair
value
 portfolio diversification
Total fair $\begin{array}{lllllllllllllll}\begin{array}{l}\text { value } \\ \text { option }\end{array} & 9 & 9 & 11 & 8 & 10 & 10 & 11 & 9 & 12 & 14 & 17 & 12 & 10 & 15\end{array}$ portfolio


Total
$\begin{array}{llllllllllllll}\text { market-b } 40 & \$ 48 & 66 & 36 & \$ 63 & \$ 44 & 63 & 32 & \$ 57 & \$ 54 & 70 & 44 & \$ 46 & \$ 52\end{array}$ portfolio

The high and low for each portfolio may have occurred on different trading days than the high and low for the ${ }^{(1)}$ components. Therefore the impact from less liquid exposures and the amount of portfolio diversification, which is the difference between the total portfolio and the sum of the individual components, are not relevant.
The average total market-based trading portfolio VaR decreased slightly for the three months ended June 30, 2017 compared to the same period in 2016 primarily due to reduced exposure to the credit markets. The graph below presents the daily total market-based trading portfolio VaR for the previous five quarters, corresponding to the data in Table 50.
Additional VaR statistics produced within our single VaR model are provided in Table 51 at the same level of detail as in Table 50. Evaluating VaR with additional statistics allows for an increased understanding of the risks in the portfolio as the historical market data used in the VaR calculation does not necessarily follow a predefined statistical distribution. Table 51 presents average trading VaR statistics at 99 percent and 95 percent confidence levels for the three months ended June 30, 2017, March 31, 2017 and June 30, 2016.

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Average Market Risk VaR for Trading
Table 51 Activities - 99 percent and 95 percent VaR Statistics

Three Months Ended

June 30, 2017 | March 31, |
| :--- |
| 2017 |

June 30, 2016
(Dollars
$\begin{array}{lllllll}\text { in } & 99 & 95 & 99 & 95 & 99 & 95\end{array}$
millions) percequercent percequercent percequercent
Foreign
exchange $\$ 13 \begin{array}{lllll}\$ 7 & \$ 12 & \$ 8 & \$ 9 & \$ 5\end{array}$
Interest
rate
$\begin{array}{lllllll}\text { Credit } & 25 & 15 & 26 & 14 & 31 & 19\end{array}$
$\begin{array}{lllllll}\text { Equity } & 18 & 9 & 19 & 10 & 20 & 13\end{array}$
$\begin{array}{llllll}\text { Commodit } 6 & 4 & 4 & 3 & 6 & 3\end{array}$
Portfolio (47)(30)(45)(28)(46)(31)
diversification $(30)(45)(28)(46)(31)$
Total
covered
positions $\begin{array}{lllllll}38 & 21 & 33 & 18 & 40 & 21\end{array}$
trading
portfolio
Impact
from less
liquid
$\begin{array}{llllll}5 & 2 & 5 & 3 & 6 & 3\end{array}$
exposures
Total
$\begin{array}{lllllll}\begin{array}{l}\text { market-based } \\ \text { trading }\end{array} & 23 & 38 & 21 & 46 & 24\end{array}$
trading
portfolio
Fair value
$\begin{array}{lllllll}\text { option } & 10 & 6 & 12 & 7 & 25 & 14\end{array}$
loans
Fair value
$\begin{array}{lllllll}\text { option } & 5 & 4 & 6 & 4 & 12 & 8\end{array}$
hedges
Fair value
$\underset{\text { portfolio }}{\operatorname{option}}(6 \quad)(5 \quad)(8)(5 \quad)(23)(14)$
diversification
Total fair
value
option
portfolio
$\left.\begin{array}{l}\text { Portfolio (4 } \\ \text { diversification }\end{array}\right)(3 \quad)(4)(4 \quad)(6)(5 \quad)$

Total
market-based
portfolio
Backtesting
The accuracy of the VaR methodology is evaluated by backtesting, which compares the daily VaR results, utilizing a one-day holding period, against a comparable subset of trading revenue. A backtesting excess occurs when a trading loss exceeds the VaR for the corresponding day. These excesses are evaluated to understand the positions and market moves that produced the trading loss and to ensure that the VaR methodology accurately represents those losses. For more information on our backtesting process, see Trading Risk Management - Backtesting in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
During the three and six months ended June 30, 2017, there were no days in which there was a backtesting excess for our total market-based portfolio VaR, utilizing a one-day holding period.
Total Trading-related Revenue
Total trading-related revenue, excluding brokerage fees, and CVA, DVA and funding valuation adjustment (FVA) gains (losses), represents the total amount earned from trading positions, including market-based net interest income, which are taken in a diverse range of financial instruments and markets. Trading
account assets and liabilities are reported at fair value. For more information on fair value, see Note 14 - Fair Value Measurements to the Consolidated Financial Statements. Trading-related revenue can be volatile and is largely driven by general market conditions and customer demand. Also, trading-related revenue is dependent on the volume and type of transactions, the level of risk assumed, and the volatility of price and rate movements at any given time within the ever-changing market environment. Significant daily revenue by business is monitored and the primary drivers of these are reviewed.
The following histogram is a graphic depiction of trading volatility and illustrates the daily level of trading-related revenue for the three months ended June 30, 2017 compared to the three months ended March 31, 2017. During the three months ended June 30, 2017, positive trading-related revenue was recorded for 100 percent of the trading days, of which 80 percent were daily trading gains of over $\$ 25$ million. This compares to the three months ended March 31 , 2017, where positive trading-related revenue was recorded for all of the trading days, of which 89 percent were daily trading gains of over $\$ 25$ million.

[^12]
## Trading Portfolio Stress Testing

Because the very nature of a VaR model suggests results can exceed our estimates and it is dependent on a limited historical window, we also stress test our portfolio using scenario analysis. This analysis estimates the change in the value of our trading portfolio that may result from abnormal market movements. For additional information, see Trading Risk Management - Trading Portfolio Stress Testing in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K.
Interest Rate Risk Management for the Banking Book
The following discussion presents net interest income for banking book activities.
Interest rate risk represents the most significant market risk exposure to our banking book balance sheet. Interest rate risk is measured as the potential change in net interest income caused by movements in market interest rates.
Client-facing activities, primarily lending and deposit-taking, create interest rate sensitive positions on our balance sheet.
We prepare forward-looking forecasts of net interest income. The baseline forecast takes into consideration expected future business growth, ALM positioning and the direction of interest rate movements as implied by the market-based forward curve. We then measure and evaluate the impact that alternative interest rate scenarios have on the baseline forecast in order to assess interest rate sensitivity under varied conditions. The net interest income forecast is frequently updated for changing assumptions and differing outlooks based on economic trends, market conditions and business strategies. Thus, we continually monitor our balance sheet position in order to maintain an acceptable level of exposure to interest rate changes.
The interest rate scenarios that we analyze incorporate balance sheet assumptions such as loan and deposit growth and pricing, changes in funding mix, product repricing, maturity characteristics
and investment securities premium amortization. Our overall goal is to manage interest rate risk so that movements in interest rates do not significantly adversely affect earnings and capital.
Table 52 presents the spot and 12-month forward rates used in our baseline forecasts at June 30, 2017 and December 31, 2016.

Table 52 Forward Rates

|  | June 30, 2017 <br>  <br> Federal Three-month |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  | Funds | LIBOR |  | Swap |
|  | $1.25 \%$ | 1.30 | $\%$ | $2.28 \%$ |
| Spot rates | 1.50 | 1.62 |  | 2.41 |

December 31, 2016
Spot rates $\quad 0.75 \% 1.00 \quad \% \quad 2.34 \%$
12-month forward rates $1.25 \quad 1.51 \quad 2.49$
Table 53 shows the pre-tax dollar impact to forecasted net interest income over the next 12 months from June 30, 2017 and December 31, 2016, resulting from instantaneous parallel and non-parallel shocks to the market-based forward curve. Periodically we evaluate the scenarios presented so that they are meaningful in the context of the current rate environment.
In the six months ended June 30, 2017, the asset sensitivity of our balance sheet to rising rates was largely unchanged. We continue to be asset sensitive to a parallel move in interest rates with the majority of that benefit coming from the short end of the yield curve. Additionally, higher interest rates impact the fair value of debt securities and, accordingly, for debt securities classified as available-for-sale (AFS), may adversely affect accumulated OCI and thus capital levels under the Basel 3 capital rules. Under instantaneous upward parallel shifts, the near-term adverse impact to Basel 3 capital is reduced over time by offsetting positive
impacts to net interest income. For more information on the transition provisions of Basel 3, see Capital Management Regulatory Capital on page 29.

Table 53 Estimated Banking Book Net
Interest Income Sensitivity
(Dollars

| in | Short Long |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| millions) | Rate | Rate | June 30 | December 31 |
| (bps) | (bps) | 2017 | 2016 |  |

Change
Parallel
Shifts
$+100 \mathrm{bps}$
instantane $\oplus \mathbf{u} \mathbf{1 0 0}+100$ \$3,188 \$ 3,370
shift
$-50 \mathrm{bps}$
instantaneesia $\quad-50 \quad(2,684)(2,900)$
shift
Flatteners
Short-end
instantane $\oplus \mathbf{u} 00$ - 2,163 2,473
change
Long-end
instantaneems $\quad-50 \quad(1,095)(961)$
change
Steepeners
Short-end
instantaneafi - (1,558) (1,918 )
change
Long-end
instantaneeus +100 1,049 928
change
The sensitivity analysis in Table 53 assumes that we take no action in response to these rate shocks and does not assume any change in other macroeconomic variables normally correlated with changes in interest rates. As part of our ALM activities, we use securities, certain residential mortgages, and interest rate and foreign exchange derivatives in managing interest rate sensitivity.
The behavior of our deposit portfolio in the baseline forecast and in alternate interest rate scenarios is a key assumption in our projected estimates of net interest income. The sensitivity analysis in Table 53 assumes no change in deposit portfolio size or mix from the baseline forecast in alternate rate environments. In higher rate scenarios, any customer activity resulting in the replacement
of low-cost or noninterest-bearing deposits with higher-yielding deposits or market-based funding would reduce our benefit in those scenarios.
Interest Rate and Foreign Exchange Derivative Contracts
Interest rate and foreign exchange derivative contracts are utilized in our ALM activities and serve as an efficient tool to manage our interest rate and foreign exchange risk. We use derivatives to hedge the variability in cash flows or changes in fair value on our balance sheet due to interest rate and foreign exchange components. For more information on our hedging activities, see Note 2 - Derivatives to the Consolidated Financial Statements.

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Our interest rate contracts are generally non-leveraged generic interest rate and foreign exchange basis swaps, options, futures and forwards. In addition, we use foreign exchange contracts, including cross-currency interest rate swaps, foreign currency futures contracts, foreign currency forward contracts and options to mitigate the foreign exchange risk associated with foreign currency-denominated assets and liabilities.
Changes to the composition of our derivatives portfolio during the six months ended June 30, 2017 reflect actions taken for interest rate and foreign exchange rate risk management. The decisions to reposition our derivatives portfolio are based on the current assessment of economic and financial conditions including the interest rate and foreign currency environments, balance sheet composition and trends, and the relative mix of our cash and derivative positions.
Table 54 presents derivatives utilized in our ALM activities including those designated as accounting and economic hedging instruments and shows the notional amount, fair value, weighted-average receive-fixed and pay-fixed rates, expected maturity and average estimated durations of our open ALM derivatives at June 30, 2017 and December 31, 2016. These amounts do not include derivative hedges on our MSRs.

[^13]Table 54 Asset and Liability Management Interest Rate and Foreign Exchange Contracts
June 30, 2017
Expected Maturity
(Dollars
in

| millions, Fair average Value | Total | $\begin{aligned} & \text { Remainder } \\ & \text { of } 2017 \end{aligned}$ | 2019 | 2020 | 2021 | Thereafter | Average Estimated Duration |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| duration |  |  |  |  |  |  |  |
| in years) |  |  |  |  |  |  |  |
| Receive-fixed |  |  |  |  |  |  |  |
| interest \$3,864 |  |  |  |  |  |  | 5.31 |

rate
swaps ${ }^{(1)}$
$\begin{array}{llllllll}\begin{array}{l}\text { Notional } \\ \text { amount }\end{array} & \$ 147,830 & \$ 12,956 & \$ 21,850 & \$ 21,783 & \$ 9,515 & \$ 5,307 & \$ 76,419\end{array}$
$\begin{array}{lllllllllll}\text { Weighted-average } & 2.59 & \% & 3.43 & \% & 3.20 & \% & 1.87 & \% & 1.98 & \% \\ 3.18 & \% & 2.51 & \%\end{array}$
fixed-rate
Pay-fixed
interest (267 )
5.87
swaps ${ }^{(1)}$
Notional $\quad \$ 29,519 \quad \$-\quad \$ 6,408 \quad \$-\quad \$-\quad \$-\quad \$ 23,111$
amount $\$ 6,408$ - $\$$ - $\$ 23,111$
Weighted-average
$\begin{aligned} & \text { Weighted-average } \\ & \text { fixed-rate }\end{aligned} 2.09 \quad \%-\quad \% 1.60 \quad \%-\quad \%-\quad \%-\quad \% 2.23 \quad \%$
Same-currency
basis (23 )
swaps ${ }^{(2)}$
$\begin{array}{llllllll}\begin{array}{l}\text { Notional } \\ \text { amount }\end{array} & \$ 47,170 & \$ 8,585 & \$ 11,028 & \$ 6,791 & \$ 1,180 & \$ 2,811 & \$ 16,775\end{array}$
Foreign
exchange
basis $(2,508)$
swaps ${ }^{1,}$
3, 4)

Option
products 30
(5)

Notional

| amount | 1,805 | 1,790 | - | - | - | - | 15 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

(6)

Foreign
exchange 998
contracts
$(1,4,7)$

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Notional $\begin{array}{llllllll}\text { amount } & 18,187 & 165 & 2,271 & 2,126 & (19 & 2,356 & 11,288\end{array}$ (6)

Futures
and
forward -
rate
contracts
Notional amount
$308 \quad 308$
(6)
$\mathrm{Net} \mathrm{ALM}_{\text {\$2,094 }}$

December 31, 2016
Expected Maturity
(Dollars
in
millions, Fair
average

estimated Value \begin{tabular}{lllllll}

\& \& \& \& \& \& | Average |
| :--- | <br>

Total \& \& 2017 \& 2018 \& 2019 \& 2020 \& 2021

 Thereafter 

Estimated <br>
Duration
\end{tabular} duration

in years)
Receive-fixed

| interest | $\$ 4,055$ | 4.81 |
| :--- | :--- | :--- |
| rate |  |  |

swaps ${ }^{(1)}$
$\begin{array}{llllllll}\begin{array}{l}\text { Notional } \\ \text { amount }\end{array} & \$ 118,603 & \$ 21,453 & \$ 25,788 & \$ 10,283 & \$ 7,515 & \$ 5,307 & \$ 48,257\end{array}$
$\begin{array}{llllllllllll}\text { Weighted-average } 2.83 & \% & 3.64 & \% & 2.81 & \% & 2.31 & \% & 2.07 & \% & 3.18 & \% \\ 2.67 & \%\end{array}$
fixed-rate
Pay-fixed
interest 159
2.77
rate
swaps ${ }^{(1)}$
$\begin{array}{llllllll}\text { Notional } & \$ 22,400 & \$ 1,527 & \$ 9,168 & \$ 2,072 & \$ 7,975 & \$ 213 & \$ 1,445\end{array}$
$\begin{array}{lllllllllllll}\text { Weighted-average } & 1.37 & \% & 1.84 & \% & 1.47 & \% & 0.97 & \% & 1.08 & \% & 1.00 & \% \\ 2.45 & \%\end{array}$
fixed-rate
Same-currency
basis (26 )
swaps ${ }^{(2)}$
$\begin{array}{llllllll}\text { Notional } & \$ 59,274 & \$ 20,775 & \$ 11,027 & \$ 6,784 & \$ 1,180 & \$ 2,799 & \$ 16,709\end{array}$
Foreign
exchange
basis $(4,233)$
swaps ${ }^{11}$,
3, 4)

| Notional | 125,522 | 26,509 | 22,724 | 12,178 | 12,150 | 8,365 | 43,596 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

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Option
products 5
(5)
$\begin{array}{lllllllll}\begin{array}{l}\text { Notional } \\ \text { amount }\end{array} & 1,687 & 1,673 & - & - & - & - & 14\end{array}$ (6)

Foreign
exchange 3,180
contracts
( $1,4,7$ )
Notional

| amount | $(20,285$ | ) (30,199 ) 197 | 1,961 | $(8)$ | 881 | 6883 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

(6)

Futures
and
forward 19
rate
contracts
Notional

| amount | 37,896 | 37,896 | - | - | - | - | - |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

${ }^{\text {Net ALM }}$ contracts $\$ 3,159$
Does not include basis adjustments on either fixed-rate debt issued by the Corporation or AFS debt securities,
${ }^{(1)}$ which are hedged using derivatives designated as fair value hedging instruments, that substantially offset the fair values of these derivatives.
At June 30, 2017 and December 31, 2016, the notional amount of same-currency basis swaps included $\$ 47.2$
${ }^{(2)}$ billion and $\$ 59.3$ billion in both foreign currency and U.S. Dollar-denominated basis swaps in which both sides of the swap are in the same currency.
(3)

Foreign exchange basis swaps consisted of cross-currency variable interest rate swaps used separately or in conjunction with receive-fixed interest rate swaps.
(4)

Does not include foreign currency translation adjustments on certain non-U.S. debt issued by the Corporation that substantially offset the fair values of these derivatives.
The notional amount of option products of $\$ 1.8$ billion at June 30,2017 was comprised of $\$ 1.8$ billion in foreign
${ }^{(5)}$ exchange options and $\$ 15$ million in purchased caps/floors. Option products of $\$ 1.7$ billion at December 31, 2016 were comprised of $\$ 1.7$ billion in foreign exchange options and $\$ 14$ million in purchased caps/floors.
${ }^{(6)}$ Reflects the net of long and short positions. Amounts shown as negative reflect a net short position. The notional amount of foreign exchange contracts of $\$ 18.2$ billion at June 30,2017 was comprised of $\$ 57.0$ billion in foreign currency-denominated and cross-currency receive-fixed swaps, $\$(31.5)$ billion in net foreign currency forward rate contracts, $\$(8.4)$ billion in foreign currency-denominated pay-fixed swaps and $\$ 1.1$ billion in
${ }^{(7)}$ net foreign currency futures contracts. Foreign exchange contracts of $\$(20.3)$ billion at December 31, 2016 were comprised of $\$ 21.5$ billion in foreign currency-denominated and cross-currency receive-fixed swaps, $\$(38.5)$ billion in net foreign currency forward rate contracts, $\$(4.6)$ billion in foreign currency-denominated pay-fixed swaps and $\$ 1.3$ billion in foreign currency futures contracts.

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We use interest rate derivative instruments to hedge the variability in the cash flows of our assets and liabilities and other forecasted transactions (collectively referred to as cash flow hedges). The net losses on both open and terminated cash flow hedge derivative instruments recorded in accumulated OCI were $\$ 1.2$ billion and $\$ 1.4$ billion, on a pre-tax basis, at June 30, 2017 and December 31, 2016. These net losses are expected to be reclassified into earnings in the same period as the hedged cash flows affect earnings and will decrease income or increase expense on the respective hedged cash flows. Assuming no change in open cash flow derivative hedge positions and no changes in prices or interest rates beyond what is implied in forward yield curves at June 30, 2017, the pre-tax net losses are expected to be reclassified into earnings as follows: $\$ 226$ million, or 18 percent within the next year, 52 percent in years two through five, and 18 percent in years six through 10 , with the remaining 12 percent thereafter. For more information on derivatives designated as cash flow hedges, see Note 2 - Derivatives to the Consolidated Financial Statements. We hedge our net investment in non-U.S. operations determined to have functional currencies other than the U.S. Dollar using forward foreign exchange contracts that typically settle in less than 180 days, cross-currency basis swaps and foreign exchange options. We recorded net after-tax losses on derivatives in accumulated OCI associated with net investment hedges which were offset by gains on our net investments in consolidated non-U.S. entities at June 30, 2017.

Mortgage Banking Risk Management
We originate, fund and service mortgage loans, which subject us to credit, liquidity and interest rate risks, among others. We determine whether loans will be held-for-investment or held-for-sale at the time of commitment and manage credit and liquidity risks by selling or securitizing a portion of the loans we originate.
Interest rate risk and market risk can be substantial in the mortgage business. Changes in interest rates and other market factors impact the volume of mortgage originations. Changes in interest rates also impact the value of IRLCs and the related residential first mortgage LHFS between the date of the IRLC and the date the loans are sold to the secondary market. An increase in mortgage interest rates typically leads to a decrease in the value of these instruments. Conversely, the value of the MSRs will increase driven by lower prepayment expectations when there is an increase in interest rates. Because the interest rate risks of these two hedged items offset, we combine them into one overall hedged item with one combined economic hedge portfolio consisting of derivative contracts and securities.
For the three and six months ended June 30, 2017, we recorded gains in mortgage banking income of $\$ 41$ million and $\$ 66$ million related to the change in fair value of the MSRs, IRLCs and LHFS, net of gains and losses on the hedge portfolio, compared to gains of $\$ 51$ million and $\$ 182$ million for the same periods in 2016. For more information on MSRs, see Note 14 - Fair Value Measurements to the Consolidated Financial Statements and for more information on mortgage banking income, see Consumer Banking on page 14.

## Complex Accounting Estimates

Our significant accounting principles are essential in understanding the MD\&A. Many of our significant accounting principles require complex judgments to estimate the values of assets and liabilities. We have procedures and processes in place to facilitate making these judgments. For additional information, see Complex Accounting Estimates of the MD\&A of the Corporation's 2016 Annual Report on Form 10-K and Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Goodwill and Intangible Assets
The nature of and accounting for goodwill and intangible assets are discussed in the Corporation's 2016 Annual Report on Form 10-K in Note 1 - Summary of Significant Accounting Principles and Note 8 - Goodwill and Intangible Assets and Complex Accounting Estimates of the MD\&A.
We completed our annual goodwill impairment test as of June 30, 2017 for all of our reporting units that had goodwill. In performing that test, we compared the fair value of each reporting unit to its estimated carrying value as measured by allocated equity, which includes goodwill. To determine fair value, we utilized a combination of valuation techniques, consistent with the market approach and the income approach, and also utilized independent valuation specialists.

Under the market approach we estimated the fair value of the individual reporting units utilizing various market multiples from comparable publicly-traded companies in industries similar to the reporting unit, including the application of a control premium of 30 percent, based upon observed comparable premiums paid for change-in-control transactions for financial institutions.
Under the income approach, we estimated the fair value of the individual reporting units based on the net present value of estimated future cash flows, utilizing internal forecasts, and an appropriate terminal value. Discount rates used ranged from 8.9 to 13.3 percent and were derived from a capital asset pricing model (i.e., cost of equity financing), that we believe adequately reflects the risk and uncertainty specifically in our internally-developed forecasts, the financial markets generally and industries similar to each of the reporting units. Cumulative average growth rates developed by management for revenues and expenses in each reporting unit ranged from flat (or zero percent) to positive 5.1 percent.
Based on the results of the test, we determined that the fair value exceeded the carrying value for all reporting units that had goodwill, indicating there was no impairment. A prolonged decrease in a particular assumption could eventually lead to the fair value of a reporting unit being less than its carrying value. Table 55 presents goodwill assigned to the individual reporting units and the respective fair value as a percentage of the carrying value as of June 30, 2017.

[^14]Table 55 Goodwill by Reporting Unit


Tables 56 and 57 provide reconciliations of certain non-GAAP financial measures to GAAP financial measures.
Table 56 Quarterly and Year-to-Date Supplemental Financial Data and Reconciliations to GAAP Financial Measures

Three Months Ended June 30 20172016

| (Dollars in millions) | As Reporte |  | ble-equivalent stment | Fully taxable-equivalent basis | As Reported |  | ble-equivalent stment | Fully taxable-equivalent basis |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net interest income | \$10,986 |  | 237 | \$ 11,223 | \$10,118 |  | 223 | \$ 10,341 |
| Total revenue, net of interest expense | 22,829 | 237 |  | 23,066 | 21,286 | 223 |  | 21,509 |
| Income tax expense | 3,108 | 237 |  | 3,345 | 2,034 | 223 |  | 2,257 |

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Six Months Ended June 30

2017
Net
interest $\$ 22,044$ \$ $434 \quad \$ 22,478 \quad \$ 20,603 \$ 438 \quad \$ 21,041$
income
Total
revenue,

| net of 45,077 | 434 | 45,511 | 42,076 | 438 | 42,514 |
| :--- | :--- | :--- | :--- | :--- | :--- |

interest
expense
Income $\begin{array}{lllllll}\text { tax } & 4,817 & 434 & 5,251 & 3,539 & 438 & 3,977\end{array}$
expense

Table 57 Period-end and Average Supplemental Financial Data and Reconciliations to GAAP Financial Measures

| Period-end |  | Average <br> Three Months Ended <br> June 30 |  | Six Months Ended June 30 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{l\|l} \text { (Dollars } & \\ \text { in } & \text { June } 30 \\ \text { inillions) } & 2017 \end{array}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ | 12017 | 2016 | 2017 | 2016 |
| Common <br> shareholder8'45,767 equity | \$ 241,620 | \$246,003 | \$240,376 | \$244,452 | \$238,803 |
| Goodwill (68,969 | ) $(69,744$ | ) $(69,489$ | ) $(69,751$ | (69,616 | (69,756 |
| Intangible <br> assets <br> (excluding ${ }^{\text {(2,610 }}$ <br> MSRs) | ) $(2,989$ | ) (2,743 | ) $(3,480$ | (2,833 | ) $(3,584$ |
| Related deferred tax $1,471$ | 1,545 | 1,506 | 1,662 | 1,522 | 1,684 |
| liabilities <br> Tangible <br> common \$1,75,659 <br> shareholders' <br> equity | \$ 170,432 | \$175,277 | \$168,807 | \$173,525 | \$167,147 |
| Shareholders' equity \$270,987 Good | \$ 266,840 | \$271,223 | \$265,354 | \$269,672 | \$262,889 |
| Goodwill (68,969 <br> Intangible | ) $(69,744$ | ) $(69,489$ | ) $(69,751$ | ) $(69,616$ | (69,756 |
| $\begin{aligned} & \text { assets } \\ & \text { (excluding } \end{aligned}$ | ) $(2,989$ | ) (2,743 | ) $(3,480$ | ) $(2,833$ | ) $(3,584$ |
| MSRs) <br> Related 1,471 <br> deferred <br> tax | 1,545 | 1,506 | 1,662 | 1,522 | 1,684 |

liabilities
Tangible
sharehold\&\&00,879 \$195,652 \$200,497 \$193,785 \$198,745 \$191,233
equity
$\begin{aligned} & \text { Total } \\ & \text { assets }\end{aligned} \quad \$ 2,254,529 \quad \$ 2,187,702$
Goodwill (68,969 ) (69,744 )
Intangible
$\left.\begin{array}{l}\text { assets } \\ \text { (excluding }\end{array}{ }^{(2,610}\right)(2,989)$

MSRs)
Related
$\begin{array}{lll}\text { deferred } & \\ 1,471 & 1,545\end{array}$
tax
$1,471 \quad 1,545$
liabilities
Tangible
assets 2,184,421 $\$ 2,116,514$
assets
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Item 3. Quantitative and Qualitative Disclosures about Market Risk
See Market Risk Management on page 60 in the MD\&A and the sections referenced therein for Quantitative and Qualitative Disclosures about Market Risk.
Item 4. Controls and Procedures
Disclosure Controls and Procedures
As of the end of the period covered by this report, the Corporation's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness and design of the Corporation's disclosure controls and procedures (as that term is defined in Rule 13a-15(e) of the Exchange Act). Based upon that evaluation, the Corporation's Chief Executive Officer and Chief Financial Officer concluded that the Corporation's disclosure controls and procedures were effective, as of the end of the period covered by this report, in recording, processing, summarizing and reporting information required to be disclosed by the Corporation in reports that it files or submits under the Exchange Act, within the time periods specified in the Securities and Exchange Commission's rules and forms.
Changes in Internal Control Over Financial Reporting
There have been no changes in the Corporation's internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) during the three months ended June 30, 2017, that have materially affected, or are reasonably likely to materially affect, the Corporation's internal control over financial reporting.

[^15]| Part I. Financial Information |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Item 1. Financial Statements |  |  |  |  |
| Bank of America Corporation and Subsidiaries |  |  |  |  |
| Consolidated Statement of Income |  |  |  |  |
|  | Three M Ended | Months June 30 | Six Mon June 30 | ths Ended |
| (Dollars in millions, except per share information) | 2017 | 2016 | 2017 | 2016 |
| Interest income |  |  |  |  |
| Loans and leases | \$8,920 | \$ 8,219 | \$17,674 | \$ 16,479 |
| Debt securities | 2,594 | 2,261 | 5,135 | 4,778 |
| Federal funds sold and securities borrowed or purchased under agreements to resell | 560 | 260 | 999 | 536 |
| Trading account assets | 1,163 | 1,075 | 2,239 | 2,254 |
| Other interest income | 909 | 759 | 1,809 | 1,535 |
| Total interest income | 14,146 | 12,574 | 27,856 | 25,582 |
| Interest expense |  |  |  |  |
| Deposits | 346 | 245 | 628 | 470 |
| Short-term borrowings | 917 | 626 | 1,564 | 1,239 |
| Trading account liabilities | 307 | 242 | 571 | 534 |
| Long-term debt | 1,590 | 1,343 | 3,049 | 2,736 |
| Total interest expense | 3,160 | 2,456 | 5,812 | 4,979 |
| Net interest income | 10,986 | 10,118 | 22,044 | 20,603 |
| Noninterest income |  |  |  |  |
| Card income | 1,469 | 1,464 | 2,918 | 2,894 |
| Service charges | 1,977 | 1,871 | 3,895 | 3,708 |
| Investment and brokerage services | 3,317 | 3,201 | 6,579 | 6,383 |
| Investment banking income | 1,532 | 1,408 | 3,116 | 2,561 |
| Trading account profits | 1,956 | 2,018 | 4,287 | 3,680 |
| Mortgage banking income | 230 | 312 | 352 | 745 |
| Gains on sales of debt securities | 101 | 249 | 153 | 439 |
| Other income | 1,261 | 645 | 1,733 | 1,063 |
| Total noninterest income | 11,843 | 11,168 | 23,033 | 21,473 |
| Total revenue, net of interest expense | 22,829 | 21,286 | 45,077 | 42,076 |
| Provision for credit losses | 726 | 976 | 1,561 | 1,973 |
| Noninterest expense |  |  |  |  |
| Personnel | 7,712 | 7,722 | 16,870 | 16,574 |
| Occupancy | 1,001 | 1,036 | 2,001 | 2,064 |
| Equipment | 427 | 451 | 865 | 914 |
| Marketing | 442 | 414 | 774 | 833 |
| Professional fees | 485 | 472 | 941 | 897 |
| Amortization of intangibles | 160 | 186 | 322 | 373 |
| Data processing | 773 | 717 | 1,567 | 1,555 |
| Telecommunications | 177 | 189 | 368 | 362 |
| Other general operating | 2,549 | 2,306 | 4,866 | 4,737 |
| Total noninterest expense | 13,726 | 13,493 | 28,574 | 28,309 |

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Income before income taxes
Income tax expense
Net income
Preferred stock dividends
Net income applicable to common shareholders

| 8,377 | 6,817 | 14,942 | 11,794 |
| :--- | :--- | :--- | :--- |
| 3,108 | 2,034 | 4,817 | 3,539 |
| $\$ 5,269$ | $\$ 4,783$ | $\$ 10,125$ | $\$ 8,255$ |
| 361 | 361 | 863 | 818 |
| $\$ 4,908$ | $\$ 4,422$ | $\$ 9,262$ | $\$ 7,437$ |

Per common share information
Earnings
Diluted earnings
Dividends paid
Average common shares issued and outstanding (in thousands)
Average diluted common shares issued and outstanding (in thousands)
$\$ 0.49 \quad \$ 0.43 \quad \$ 0.92 \quad \$ 0.72$

See accompanying Notes to Consolidated Financial Statements.
$\begin{array}{llll}0.46 & 0.41 & 0.87 & 0.68\end{array}$
$\begin{array}{llll}0.075 & 0.05 & 0.15 & 0.10\end{array}$
$10,013,5103,328,42410,056,11110,308,241$
$10,822,01619,059,16710,868,43111,079,939$

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Bank of America Corporation and Subsidiaries
Consolidated Statement of Comprehensive Income

|  | Three Months <br> Ended June 30 |  | Six Months Ended <br> June 30 |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 |
| Net income | $\$ 5,269$ | $\$ 4,783$ | $\$ 10,125$ | $\$ 8,255$ |
| Other comprehensive income (loss), net-of-tax: |  |  |  |  |
| Net change in debt and marketable equity securities | 568 | 755 | 469 | 3,111 |
| Net change in debit valuation adjustments | $(78$ | $)(13$ | $)(69$ | 114 |
| Net change in derivatives | 94 | 126 | 132 | 150 |
| Employee benefit plan adjustments | 27 | 13 | 54 | 23 |
| Net change in foreign currency translation adjustments | 100 | $(21$ | 97 | $(9)$ |
| Other comprehensive income | 711 | 860 | 683 | 3,389 |
| Comprehensive income | $\$ 5,980$ | $\$ 5,643$ | $\$ 10,808$ | $\$ 11,644$ |

See accompanying Notes to Consolidated Financial Statements.

[^16]Bank of America Corporation and Subsidiaries
Consolidated Balance Sheet

| (Dollars in millions) | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ |
| :---: | :---: | :---: |
| Assets |  |  |
| Cash and due from banks | \$29,974 | \$30,719 |
| Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks | 128,730 | 117,019 |
| Cash and cash equivalents | 158,704 | 147,738 |
| Time deposits placed and other short-term investments | 10,152 | 9,861 |
| Federal funds sold and securities borrowed or purchased under agreements to resell (includes $\$ 50,758$ and $\$ 49,750$ measured at fair value) | 217,201 | 198,224 |
| Trading account assets (includes \$117,313 and \$106,057 pledged as collateral) | 216,369 | 180,209 |
| Derivative assets | 39,190 | 42,512 |
| Debt securities: |  |  |
| Carried at fair value (includes \$29,782 and \$29,804 pledged as collateral) | 315,509 | 313,660 |
| Held-to-maturity, at cost (fair value - \$117,330 and \$115,285; \$4,184 and \$8,233 pledged as collateral) | 119,008 | 117,071 |
| Total debt securities | 434,517 | 430,731 |
| Loans and leases (includes $\$ 7,325$ and $\$ 7,085$ measured at fair value and $\$ 41,913$ and $\$ 31,805$ pledged as collateral) | 916,666 | 906,683 |
| Allowance for loan and lease losses | (10,875 | ) $(11,237$ |
| Loans and leases, net of allowance | 905,791 | 895,446 |
| Premises and equipment, net | 8,904 | 9,139 |
| Mortgage servicing rights | 2,501 | 2,747 |
| Goodwill | 68,969 | 68,969 |
| Intangible assets | 2,610 | 2,922 |
| Loans held-for-sale (includes \$2,707 and \$4,026 measured at fair value) | 5,882 | 9,066 |
| Customer and other receivables (includes \$250 measured at fair value at June 30, 2017) | 59,342 | 58,759 |
| Assets of business held for sale (includes $\$ 619$ measured at fair value at December 31, 2016) | - | 10,670 |
| Other assets (includes \$14,865 and \$13,802 measured at fair value) | 124,397 | 120,709 |
| Total assets | \$2,254,529 | \$2,187,702 |

Assets of consolidated variable interest entities included in total assets above (isolated to settle the liabilities of the variable interest entities)

| Trading account assets | $\$ 4,543$ | $\$ 5,773$ |
| :--- | :--- | :--- |
| Loans and leases | 51,604 | 56,001 |
| Allowance for loan and lease losses | $(1,004$ | $)(1,032$ |
| Loans and leases, net of allowance | 50,600 | 54,969 |
| Loans held-for-sale | 93 | 188 |
| All other assets | 1,136 | 1,596 |
| Total assets of consolidated variable interest entities | $\$ 56,372$ | $\$ 62,526$ |

See accompanying Notes to Consolidated Financial Statements.
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Bank of America Corporation and Subsidiaries

## Consolidated Balance Sheet (continued)

| (Dollars in millions) | $\begin{aligned} & \text { June } 30 \\ & 2017 \end{aligned}$ | $\begin{aligned} & \text { December } 31 \\ & 2016 \end{aligned}$ |
| :---: | :---: | :---: |
| Liabilities |  |  |
| Deposits in U.S. offices: |  |  |
| Noninterest-bearing | \$427,715 | \$438,125 |
| Interest-bearing (includes \$456 and \$731 measured at fair value) | 757,888 | 750,891 |
| Deposits in non-U.S. offices: |  |  |
| Noninterest-bearing | 13,446 | 12,039 |
| Interest-bearing | 63,931 | 59,879 |
| Total deposits | 1,262,980 | 1,260,934 |
| Federal funds purchased and securities loaned or sold under agreements to repurchase (includes $\$ 32,132$ and $\$ 35,766$ measured at fair value) | 196,407 | 170,291 |
| Trading account liabilities | 77,933 | 63,031 |
| Derivative liabilities | 34,880 | 39,480 |
| Short-term borrowings (includes \$1,572 and \$2,024 measured at fair value) | 36,494 | 23,944 |
| Accrued expenses and other liabilities (includes $\$ 17,278$ and $\$ 14,630$ measured at fair value and $\$ 757$ and $\$ 762$ of reserve for unfunded lending commitments) | 150,925 | 146,359 |
| Long-term debt (includes \$29,073 and \$30,037 measured at fair value) | 223,923 | 216,823 |
| Total liabilities | 1,983,542 | 1,920,862 |
| Commitments and contingencies (Note 6 - Securitizations and Other Variable Interest Entities, Note 7 - Representations and Warranties Obligations and Corporate |  |  |
|  |  |  |
| Guarantees and Note 10 - Commitments and Contingencies) |  |  |
| Shareholders' equity |  |  |
| Preferred stock, $\$ 0.01$ par value; authorized - 100,000,000 shares; issued and outstanding $3,887,329$ and $3,887,329$ shares | -25,220 | 25,220 |
| Common stock and additional paid-in capital, \$0.01 par value; authorized $12,800,000,000$ shares; issued and outstanding - 9,878,118,264 and 10,052,625,604 shares | 142,744 | 147,038 |
| Retained earnings | 109,628 | 101,870 |
| Accumulated other comprehensive income (loss) | (6,605 | ) $(7,288$ |
| Total shareholders' equity | 270,987 | 266,840 |
| Total liabilities and shareholders' equity | \$2,254,529 | \$2,187,702 |
| Liabilities of consolidated variable interest entities included in total liabilities above |  |  |
| Short-term borrowings | \$97 | \$348 |
| Long-term debt (includes \$9,752 and \$10,417 of non-recourse debt) | 9,765 | 10,646 |
| All other liabilities (includes \$50 and \$38 of non-recourse liabilities) | 52 | 41 |
| Total liabilities of consolidated variable interest entities | \$9,914 | \$ 11,035 |
| See accompanying Notes to Consolidated Financial Statements. |  |  |

[^17]Bank of America Corporation and Subsidiaries
Consolidated Statement of Changes in Shareholders' Equity


See accompanying Notes to Consolidated Financial Statements.
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## Bank of America Corporation and Subsidiaries

## Consolidated Statement of Cash Flows

|  | Six Months Ended |  |
| :--- | :--- | :--- |
|  | $\begin{array}{l}\text { June } 30\end{array}$ | 2016 |
| (Dollars in millions) | 2017 |  |
| Operating activities |  |  |
| Net income | 10,125 | $\$ 8,255$ |
| Adjustments to reconcile net income to net cash (used in) provided by operating activities: |  |  |
| Provision for credit losses | 1,561 | 1,973 |
| Gains on sales of debt securities | $(153$ | $)(439$ |
| Depreciation and premises improvements amortization | 743 | 755 |
| Amortization of intangibles | 322 | 373 |
| Net amortization of premium/discount on debt securities | 1,065 | 1,321 |
| Deferred income taxes | 3,334 | 3,041 |
| Stock-based compensation | 1,264 | 962 |
| Loans held-for-sale: |  |  |
| Originations and purchases | $(18,103$ | $)(13,400$ |$)$

$\left.\begin{array}{llll}\text { Retirement of long-term debt } & (29,722 & )(28,050 & ) \\ \text { Preferred stock: Proceeds from issuance } & - & 2,947 & (4,964 \\ \hline\end{array}\right)\left(\begin{array}{ll}(2,383 & ) \\ \text { Common stock repurchased } & (2,403 \\ \hline\end{array}\right)(1,853)$

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Bank of America Corporation and Subsidiaries
Notes to Consolidated Financial Statements
NOTE 1 Summary of Significant Accounting Principles
Bank of America Corporation, a bank holding company and a financial holding company, provides a diverse range of financial services and products throughout the U.S. and in certain international markets. The term "the Corporation" as used herein may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation's subsidiaries or affiliates.
Principles of Consolidation and Basis of Presentation
The Consolidated Financial Statements include the accounts of the Corporation and its majority-owned subsidiaries and those variable interest entities (VIEs) where the Corporation is the primary beneficiary. Intercompany accounts and transactions have been eliminated. Results of operations of acquired companies are included from the dates of acquisition and for VIEs, from the dates that the Corporation became the primary beneficiary. Assets held in an agency or fiduciary capacity are not included in the Consolidated Financial Statements. The Corporation accounts for investments in companies for which it owns a voting interest and for which it has the ability to exercise significant influence over operating and financing decisions using the equity method of accounting. These investments are included in other assets. Equity method investments are subject to impairment testing, and the Corporation's proportionate share of income or loss is included in other income.
The preparation of the Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States of America (GAAP) requires management to make estimates and assumptions that affect reported amounts and disclosures. Realized results could differ from those estimates and assumptions.
These unaudited Consolidated Financial Statements should be read in conjunction with the audited Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
The nature of the Corporation's business is such that the results of any interim period are not necessarily indicative of results for a full year. In the opinion of management, all adjustments, which consist of normal recurring adjustments necessary for a fair statement of the interim period results have been made. The Corporation evaluates subsequent events through the date of filing with the Securities and Exchange Commission (SEC). Certain prior-period amounts have been reclassified to conform to current period presentation.
On June 1, 2017, the Corporation completed the previously-announced sale of its non-U.S. consumer credit card business to a third party. The Corporation has indemnified the purchaser for substantially all payment protection insurance (PPI) exposure above reserves assumed by the purchaser. The impact of the sale is an after-tax gain of \$103 million, and is presented in the Consolidated Statement of Income as other income of $\$ 793$ million and an income tax expense of $\$ 690$ million. The income tax expense is related to gains on the derivatives used to hedge
the currency risk of the net investment. Total cash proceeds from the sale were $\$ 10.9$ billion. The assets of the business sold primarily included consumer credit card receivables of $\$ 9.8$ billion and $\$ 9.2$ billion at June 1, 2017 and December 31, 2016, and goodwill of $\$ 775$ million at both of those period ends. This business was included in All Other.

## New Accounting Pronouncements

Accounting for Financial Instruments -- Credit Losses
The Financial Accounting Standards Board (FASB) issued a new accounting standard effective on January 1, 2020, with early adoption permitted on January 1, 2019, that will require the earlier recognition of credit losses on loans and other financial instruments based on an expected loss model, replacing the incurred loss model that is currently in use. The standard also requires expanded credit quality disclosures, including credit quality indicators disaggregated by vintage. The Corporation is in the process of identifying and implementing required changes to loan loss estimation models and processes and evaluating the impact of this new accounting standard, which at the date of adoption is expected to increase the allowance for credit losses with a resulting negative adjustment to retained earnings.
Revenue Recognition
The FASB issued a new accounting standard effective on January 1, 2018 for recognizing revenue from contracts with customers. While the new standard does not apply to revenue associated with loans or securities, the Corporation has identified the customer contracts within the scope of the new standard and is assessing the related revenues to
determine if any accounting or internal control changes will be required for the new provisions. The timing of the Corporation's revenue recognition is not expected to materially change. The classification of certain contract costs continues to be evaluated, and the final interpretation may impact the presentation of certain contract costs. Overall, the Corporation does not expect the new standard to have a material impact on its consolidated financial position, results of operations or disclosures in the Notes to the Consolidated Financial Statements.
Lease Accounting
The FASB issued a new accounting standard effective on January 1, 2019 that requires substantially all leases to be recorded as assets and liabilities on the balance sheet. This new accounting standard uses a modified retrospective transition that will be applied to all prior periods presented. The Corporation is in the process of reviewing its existing lease portfolios, as well as other service contracts for embedded leases, to evaluate the impact of the new accounting standard on the financial statements, as well as the impact to regulatory capital and risk-weighted assets. The effect of the adoption will depend on its lease portfolio at the time of transition; however, the Corporation does not expect the new accounting standard to have a material impact on its consolidated financial position, results of operations or disclosures in the Notes to the Consolidated Financial Statements.

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Recognition and Measurement of Financial Assets and Financial Liabilities
The FASB issued a new accounting standard effective on January 1, 2018, with early adoption permitted for the provisions related to debit valuation adjustments (DVA), on recognition and measurement of financial instruments, including certain equity investments and financial liabilities recorded at fair value under the fair value option. In 2015, the Corporation early adopted, retrospective to January 1, 2015, the provisions of this new accounting standard related to DVA on financial liabilities accounted for under the fair value option. The Corporation does not expect the remaining provisions of this new accounting standard to have a material impact on its consolidated financial position, results of operations or disclosures in the Notes to the Consolidated Financial Statements.

## NOTE 2 Derivatives

## Derivative Balances

Derivatives are entered into on behalf of customers, for trading or to support risk management activities. Derivatives used in risk management activities include derivatives that may or may not be designated in qualifying hedge accounting relationships. Derivatives that are not designated in qualifying hedge accounting relationships are referred to as other risk management derivatives. For more information on the Corporation's derivatives and hedging activities, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. The following tables present derivative instruments included on the Consolidated Balance Sheet in derivative assets and liabilities at June 30, 2017 and December 31, 2016. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements and have been reduced by the cash collateral received or paid.


Purchased options
Credit derivatives ${ }^{(2)}$
Purchased credit derivatives:
Credit default swaps
Total return swaps/other
Written credit derivatives:
Credit default swaps
Total return swaps/other
Gross derivative assets/liabilities
Less: Legally enforceable master netting agreements
Less: Cash collateral received/paid
Total derivative assets/liabilities ${ }^{(3)}$
${ }^{(1)}$ Represents the total contract/notional amount of derivative assets and liabilities outstanding.
(2) The net derivative asset and notional amount of written credit derivatives for which the Corporation held purchased credit derivatives with identical underlying referenced names were $\$ 5.2$ billion and $\$ 494.3$ billion at June 30, 2017. Derivative assets and liabilities reflect a central clearing counterparty's amendments to legally re-characterize daily
${ }^{(3)}$ cash variation margin from collateral, which secures an outstanding exposure, to settlement, which discharges an outstanding exposure, effective in January 2017.

[^18]
(1) Represents the total contract/notional amount of derivative assets and liabilities outstanding. The net derivative asset and notional amount of written credit derivatives for which the Corporation held purchased
${ }^{(2)}$ credit derivatives with identical underlying referenced names were $\$ 2.2$ billion and $\$ 548.9$ billion at December 31, 2016.

Offsetting of Derivatives
The Corporation enters into International Swaps and Derivatives Association, Inc. (ISDA) master netting agreements or similar agreements with substantially all of the Corporation's derivative counterparties. Where legally enforceable, these master netting agreements give the Corporation, in the event of default by the counterparty, the right to liquidate

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securities held as collateral and to offset receivables and payables with the same counterparty. For additional information on the offsetting of derivative assets and liabilities, see Note 2 - Derivatives to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

The following table presents derivative instruments included in derivative assets and liabilities on the Consolidated Balance Sheet at June 30, 2017 and December 31, 2016 by primary risk (e.g., interest rate risk) and the platform, where applicable, on which these derivatives are transacted. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total gross derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements which includes reducing the balance for counterparty netting and cash collateral received or paid.
For more information on offsetting of securities financing agreements, see Note 9 - Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings.

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Offsetting of Derivatives ${ }^{(1)}$
(Dollars in billions)
Interest rate contracts
Over-the-counter
Over-the-counter cleared
Foreign exchange contracts
Over-the-counter
Over-the-counter cleared
Equity contracts
Over-the-counter
Exchange-traded
Commodity contracts
Over-the-counter
Exchange-traded
Credit derivatives
Over-the-counter
Over-the-counter cleared
Total gross derivative assets/liabilities, before netting
Over-the-counter
Exchange-traded
Over-the-counter cleared
Less: Legally enforceable master netting agreements and cash collateral received/paid
Over-the-counter
June 30, 2017 December 31, 2016
DerivativĐerivative DerivativĐerivative
Assets Liabilities Assets Liabilities

| $\$ 232.3$ | $\$ 224.3$ | $\$ 267.3$ | $\$ 258.2$ |
| :--- | :--- | :--- | :--- |
| 124.6 | 132.6 | 177.2 | 182.8 |
|  |  |  |  |
| 94.2 | 100.6 | 124.3 | 126.7 |
| 0.6 | 0.5 | 0.3 | 0.3 |
|  |  |  |  |
| 17.0 | 15.5 | 15.6 | 13.7 |
| 8.9 | 8.7 | 11.4 | 10.8 |
|  |  |  |  |
| 3.0 | 4.3 | 3.7 | 4.9 |
| 0.8 | 0.6 | 1.1 | 1.0 |
|  |  |  |  |
| 11.0 | 11.1 | 15.3 | 14.7 |
| 5.1 | 5.2 | 4.3 | 4.3 |
|  |  |  |  |
| 357.5 | 355.8 | 426.2 | 418.2 |
| 9.7 | 9.3 | 12.5 | 11.8 |
| 130.3 | 138.3 | 181.8 | 187.4 |

Exchange-traded
Over-the-counter cleared
Derivative assets/liabilities, after netting
Other gross derivative assets/liabilities ${ }^{(2)}$
Total derivative assets/liabilities ${ }^{(3)}$
Less: Financial instruments collateral ${ }^{(4)}$
Total net derivative assets/liabilities

| $(332.6)(333.1$ | $)(398.2)(392.6$ | $)$ |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $(8.6$ | $)(8.6$ | $)(8.9)(8.9$ | $)$ |  |
| $(130.0)(138.0$ | $)(181.5)(187.3$ | $)$ |  |  |
| 26.3 | 23.7 | 31.9 | 28.6 |  |
| 12.9 | 11.2 | 10.6 | 10.9 |  |
| 39.2 | 34.9 | 42.5 | 39.5 |  |
| $(12.2$ | $)(10.8$ | $)(13.5$ | $)(10.5$ | $)$ |
| $\$ 27.0$ | $\$ 24.1$ | $\$ 29.0$ | $\$ 29.0$ |  |

Over-the-counter (OTC) derivatives include bilateral transactions between the Corporation and a particular counterparty. OTC-cleared derivatives include bilateral transactions between the Corporation and a counterparty where the transaction is cleared through a clearinghouse, and exchange-traded derivatives include listed options transacted on an exchange.
${ }_{(2)}$ Consists of derivatives entered into under master netting agreements where the enforceability of these agreements is uncertain under bankruptcy laws in some countries or industries.
Derivative assets and liabilities reflect a central clearing counterparty's amendments to legally re-characterize daily
${ }^{(3)}$ cash variation margin from collateral, which secures an outstanding exposure, to settlement, which discharges an outstanding exposure, effective in January 2017.
Amounts are limited to the derivative asset/liability balance and, accordingly, do not include excess collateral
${ }_{(4)}$ received/pledged. Financial instruments collateral includes securities collateral received or pledged and cash securities held and posted at third-party custodians that are not offset on the Consolidated Balance Sheet but shown as a reduction to derive net derivative assets and liabilities.
ALM and Risk Management Derivatives

The Corporation's asset and liability management (ALM) and risk management activities include the use of derivatives to mitigate risk to the Corporation including derivatives designated in qualifying hedge accounting relationships and derivatives used in other risk management activities. For additional information, see Note 2 - Derivatives to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. Derivatives Designated as Accounting Hedges
The Corporation uses various types of interest rate, commodity and foreign exchange derivative contracts to protect against changes in the fair value of its assets and liabilities due to fluctuations in interest rates, commodity prices and exchange rates (fair value hedges). The Corporation also uses these types of contracts and equity derivatives to protect against changes in the cash flows of its assets and liabilities, and other forecasted transactions (cash flow hedges). The Corporation hedges its net investment in consolidated non-U.S. operations determined to
have functional currencies other than the U.S. Dollar using forward exchange contracts and cross-currency basis swaps, and by issuing foreign currency-denominated debt (net investment hedges).
Fair Value Hedges
The following table summarizes information related to fair value hedges for the three and six months ended June 30, 2017 and 2016, including hedges of interest rate risk on long-term debt that were acquired as part of a business combination and redesignated at that time. At redesignation, the fair value of the derivatives was positive. As the derivatives mature, the fair value will approach zero. As a result, ineffectiveness will occur and the fair value changes in the derivatives and the long-term debt being hedged may be directionally the same in certain scenarios. Based on a regression analysis, the derivatives continue to be highly effective at offsetting changes in the fair value of the long-term debt attributable to interest rate risk.

[^19]Derivatives Designated as Fair Value Hedges


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Net investment hedges
Foreign exchange risk ${ }^{(3)}$
$\$(4,336) \$ 1,928 \quad \$(33) \quad \$(4,725) \$ 1,798 \quad \$(48)$
Three Months Ended June 30, 2016 Six Months Ended June 30, 2016
Cash flow hedges
Interest rate risk on variable-rate portfolios
Price risk on restricted stock awards ${ }^{(2)}$
Total
Net investment hedges
Foreign exchange risk $\quad \$ 592 \quad \$ 1 \quad \$(23 \quad) \quad \$(41 \quad) \$ 1 \quad \$(166)$
(1) Amounts related to cash flow hedges represent hedge ineffectiveness and amounts related to net investment hedges represent amounts excluded from effectiveness testing.
(2) Gains (losses) recognized in accumulated OCI are primarily related to the change in the Corporation's stock price for the period.

Substantially all of the gains in income reclassified from accumulated OCI are comprised of the gain
(3) recognized on derivatives used to hedge the currency risk of the Corporation's net investment in its non-U.S. consumer credit card business, which was sold on June 1, 2017. For additional information, see Note 12 - Accumulated Other Comprehensive Income (Loss).

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## Other Risk Management Derivatives

Other risk management derivatives are used by the Corporation to reduce certain risk exposures. These derivatives are not qualifying accounting hedges because either they did not qualify for or were not designated as accounting hedges. The table below presents gains (losses) on these derivatives for the three and six months ended June 30, 2017 and 2016. These gains (losses) are largely offset by the income or expense that is recorded on the hedged item.

Other Risk Management Derivatives
Gains (Losses)

|  | Three <br> Months | Six Months <br> Ended June |
| :--- | :--- | :--- | :--- |
|  | 30 | 30 |
| Ended June |  |  | 30

Net gains on these derivatives are recorded in mortgage banking income as they are used to mitigate the interest rate risk related to mortgage servicing rights (MSRs), interest rate lock commitments (IRLCs) and mortgage loans
(1) held-for-sale, all of which are measured at fair value with changes in fair value recorded in mortgage banking income. The net gains on IRLCs related to the origination of mortgage loans that are held-for-sale, which are not included in the table but are considered derivative instruments, were $\$ 60$ million and $\$ 116$ million for the three and six months ended June 30, 2017 compared to $\$ 177$ million and $\$ 329$ million for the same periods in 2016.
(2) Primarily related to derivatives that are economic hedges of credit risk on loans. Net gains (losses) on these derivatives are recorded in other income.
(3) Primarily related to hedges of debt securities carried at fair value and hedges of foreign currency-denominated debt. Gains (losses) on these derivatives and the related hedged items are recorded in other income.
${ }^{(4)}$ Gains (losses) on these derivatives are recorded in personnel expense.
Transfers of Financial Assets with Risk Retained through Derivatives
The Corporation enters into certain transactions involving the transfer of financial assets that are accounted for as sales where substantially all of the economic exposure to the transferred financial assets is retained through derivatives (e.g., interest rate and/or credit), but the Corporation does not retain control over the assets transferred. Through June 30, 2017 and December 31, 2016, the Corporation transferred $\$ 6.3$ billion and $\$ 6.6$ billion of non-U.S. government-guaranteed mortgage-backed securities
(MBS) to a third-party trust and retained economic exposure to the transferred assets through derivative contracts. In connection with these transfers, the Corporation received gross cash proceeds of $\$ 6.3$ billion and $\$ 6.6$ billion at the transfer dates. At June 30, 2017 and December 31, 2016, the fair value of the transferred securities was $\$ 6.2$ billion and $\$ 6.3$ billion. Derivative assets of $\$ 43$ million at both period ends and liabilities of $\$ 7$ million and $\$ 10$ million were recorded at June 30, 2017 and December 31, 2016, and are included in credit derivatives in the derivative instruments table on page 76 .

[^20]Sales and Trading Revenue
The Corporation enters into trading derivatives to facilitate client transactions and to manage risk exposures arising from trading account assets and liabilities. It is the Corporation's policy to include these derivative instruments in its trading activities which include derivatives and non-derivative cash instruments. The resulting risk from these derivatives is managed on a portfolio basis as part of the Corporation's Global Markets business segment. For more information on sales and trading revenue, see Note 2 - Derivatives to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

The following table, which includes both derivatives and non-derivative cash instruments, identifies the amounts in the respective income statement line items attributable to the Corporation's sales and trading revenue in Global Markets, categorized by primary risk, for the three and six months ended June 30, 2017 and 2016. The difference between total trading account profits in the following table and in the Consolidated Statement of Income represents trading activities in business segments other than Global Markets. This table includes debit valuation and funding valuation adjustment (DVA/FVA) gains (losses). Global Markets results in Note 17 - Business Segment Information are presented on a fully taxable-equivalent (FTE) basis. The following table is not presented on an FTE basis.

Sales and Trading Revenue

| (Dollars in millions) | Three Months Ended June 302017 |  |  |  | Six Months Ended June 30 2017 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |
|  | Trading Net AccountInterest |  | Other <br> (1) | Total | Trading Net |  | Other <br> (1) | Total |
|  | Profits | Income |  |  | Profits | Income |  |  |
| Interest rate risk | \$326 | \$ 226 | \$117 | \$669 | \$674 | \$533 | \$235 | \$1,442 |
| Foreign exchange risk | 347 | (1 | ) (39 ) | 307 | 715 | (4 | ) 80 | ) 631 |
| Equity risk | 776 | (155 | ) 475 | 1,096 | 1,447 | (230 | ) 962 | 2,179 |
| Credit risk | 264 | 621 | 148 | 1,033 | 950 | 1,268 | 345 | 2,563 |
| Other risk | 30 | 5 | 18 | 53 | 134 | 10 | 51 | 195 |
| Total sales and trading revenue | \$1,743 | \$ 696 | \$719 | \$3,158 | \$3,920 | \$ 1,577 | \$ 1,513 | \$7,010 |


|  | Three Months Ended June 30 |  |  |  |  | Six Months Ended June 30 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  |  |  | 2016 |  |  |  |  |
| Interest rate risk | \$429 | \$ 334 |  | \$75 | \$838 | \$923 | \$759 | \$ 126 |  | \$ 1,808 |
| Foreign exchange risk | 344 | (2 | ) | (37 | ) 305 | 684 | (3 | ) $(73$ |  | 608 |
| Equity risk | 586 | (17 | ) | 510 | 1,079 | 1,017 | (16 | ) 1,108 |  | 2,109 |
| Credit risk | 414 | 642 |  | 118 | 1,174 | 622 | 1,268 | 256 |  | 2,146 |
| Other risk | 99 | (11 | ) | 9 | 97 | 221 | (26 | ) 26 |  | 221 |

Total sales and trading revenue $\$ 1,872 \$ 946 \quad \$ 675 \quad \$ 3,493 \$ 3,467 \$ 1,982 \quad \$ 1,443 \quad \$ 6,892$
Represents amounts in investment and brokerage services and other income that are recorded in Global Markets
${ }_{(1)}$ and included in the definition of sales and trading revenue. Includes investment and brokerage services revenue of $\$ 514$ million and $\$ 1.0$ billion for the three and six months ended June 30, 2017 and $\$ 517$ million and $\$ 1.1$ billion for the same periods in 2016.
Credit Derivatives
The Corporation enters into credit derivatives primarily to facilitate client transactions and to manage credit risk exposures. Credit derivatives derive value based on an underlying third-party referenced obligation or a portfolio of referenced obligations and generally require the Corporation, as the seller of credit protection, to make payments to a buyer upon the occurrence of a pre-defined credit event. Such credit events generally include bankruptcy of the referenced credit entity and failure to pay under the obligation,

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as well as acceleration of indebtedness and payment repudiation or moratorium. For credit derivatives based on a portfolio of referenced credits or credit indices, the Corporation may not be required to make payment until a specified amount of loss has occurred and/or may only be required to make payment up to a specified amount.
Credit derivative instruments where the Corporation is the seller of credit protection and their expiration at June 30, 2017 and December 31, 2016 are summarized in the following table.

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Credit Derivative Instruments

| (Dollars in millions) | Less than One Year | One to <br> Three <br> Years | Three to <br> Five <br> Years | Over <br> Five <br> Years | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Credit default swaps: |  |  |  |  |  |
| Investment grade | \$5 | \$31 | \$255 | \$355 | \$646 |
| Non-investment grade | 317 | 605 | 565 | 2,614 | 4,101 |
| Total | 322 | 636 | 820 | 2,969 | 4,747 |
| Total return swaps/other: |  |  |  |  |  |
| Investment grade | 13 | - | - | - | 13 |
| Non-investment grade | 139 | 1 | - | 49 | 189 |
| Total | 152 | 1 | - | 49 | 202 |
| Total credit derivatives | \$474 | \$637 | \$820 | \$3,018 | \$4,949 |
| Credit-related notes: |  |  |  |  |  |
| Investment grade | \$- | \$1 | \$321 | \$875 | \$1,197 |
| Non-investment grade | 17 | 20 | 12 | 1,307 | 1,356 |
| Total credit-related notes | \$17 | \$21 | \$333 | \$2,182 | \$2,553 |
|  | Maximum | Payout/No | otional |  |  |
| Credit default swaps: |  |  |  |  |  |
| Investment grade | \$97,928 | \$117,056 | \$113,761 | \$22,466 | \$351,211 |
| Non-investment grade | 69,315 | 45,426 | 40,295 | 15,342 | 170,378 |
| Total | 167,243 | 162,482 | 154,056 | 37,808 | 521,589 |
| Total return swaps/other: |  |  |  |  |  |
| Investment grade | 24,146 | - | - | - | 24,146 |
| Non-investment grade | 7,757 | 4,638 | 305 | 915 | 13,615 |
| Total | 31,903 | 4,638 | 305 | 915 | 37,761 |
| Total credit derivatives | \$199,146 | \$167,120 | \$154,361 | \$38,723 | \$559,350 |


|  | Carrying Value |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Credit default swaps: |  |  |  |  |  |  |
| Investment grade | $\$ 10$ | $\$ 64$ | $\$ 535$ | $\$ 783$ | $\$ 1,392$ |  |
| Non-investment grade | 771 | 1,053 | 908 | 3,339 | 6,071 |  |
| Total | 781 | 1,117 | 1,443 | 4,122 | 7,463 |  |
| Total return swaps/other: |  |  |  |  |  |  |
| Investment grade | 16 | - | - | - | 16 |  |
| Non-investment grade | 127 | 10 | 2 | 1 | 140 |  |
| Total | 143 | 10 | 2 | 1 | 156 |  |
| Total credit derivatives | $\$ 924$ | $\$ 1,127$ | $\$ 1,445$ | $\$ 4,123$ | $\$ 7,619$ |  |
| Credit-related notes: | $\$-$ | $\$ 12$ | $\$ 542$ | $\$ 1,423$ | $\$ 1,977$ |  |
| Investment grade | $\$-$ | 22 | 60 | 1,318 | 1,470 |  |
| Non-investment grade | 70 | $\$ 34$ | $\$ 602$ | $\$ 2,741$ | $\$ 3,447$ |  |
| Total credit-related notes | $\$ 70$ | Maximum Payout/Notional |  |  |  |  |
|  |  |  |  |  |  |  |
| Credit default swaps: |  |  |  |  |  |  |
| Investment grade |  |  |  |  |  |  |

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Non-investment grade
Total
Total return swaps/other:
$\begin{array}{llllll}\text { Investment grade } & 12,792 & - & - & - & 12,792\end{array}$
$\begin{array}{llllll}\text { Non-investment grade } & 6,638 & 5,127 & 589 & 208 & 12,562\end{array}$
Total
Total credit derivatives $\quad \$ 225,268 \$ 215,487 \$ 158,130 \$ 40,824 \$ 639,709$
Credit derivatives are classified as investment and non-investment grade based on the credit quality of the underlying referenced obligation. The Corporation considers ratings of BBB- or higher as investment grade. Non-investment grade includes non-rated credit derivative instruments. The Corporation discloses internal categorizations of investment grade and non-investment grade consistent with how risk is managed for these instruments.

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The notional amount represents the maximum amount payable by the Corporation for most credit derivatives. However, the Corporation does not monitor its exposure to credit derivatives based solely on the notional amount because this measure does not take into consideration the probability of occurrence. As such, the notional amount is not a reliable indicator of the Corporation's exposure to these contracts. Instead, a risk framework is used to define risk tolerances and establish limits to help ensure that certain credit risk-related losses occur within acceptable, predefined limits.
Credit-related notes in the table on page 82 include investments in securities issued by collateralized debt obligation (CDO), collateralized loan obligation (CLO) and credit-linked note vehicles. These instruments are primarily classified as trading securities. The carrying value of these instruments equals the Corporation's maximum exposure to loss. The Corporation is not obligated to make any payments to the entities under the terms of the securities owned. Credit-related Contingent Features and Collateral
The majority of the Corporation's derivative contracts contain credit-risk related features, primarily in the form of ISDA master netting agreements and credit support documentation that enhance the creditworthiness of these instruments. Therefore, events such as a credit rating downgrade or a breach of credit covenants would typically require an increase in the amount of collateral required of the counterparty, where applicable, and/or allow the Corporation to take additional protective measures such as early termination of all trades. At June 30, 2017 and December 31, 2016, the Corporation held cash and securities collateral of $\$ 77.0$ billion and $\$ 85.5$ billion, and posted cash and securities collateral of $\$ 67.2$ billion and $\$ 71.1$ billion in the normal course of business under derivative agreements, excluding cross-product margining agreements where clients are permitted to margin on a net basis for both derivative and secured financing arrangements.
In connection with certain OTC derivative contracts and other trading agreements, the Corporation can be required to provide additional collateral or to terminate transactions with certain counterparties in the event of a downgrade of the senior debt ratings of the Corporation or certain subsidiaries. At June 30, 2017, the amount of collateral, calculated based on the terms of the contracts, that the Corporation and certain subsidiaries could be required to post to counterparties but had not yet posted to counterparties was approximately $\$ 2.5$ billion, including $\$ 1.8$ billion for Bank of America, N.A. (BANA). For more information on credit-related contingent features and collateral, see Note 2 Derivatives to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. Some counterparties are currently able to unilaterally terminate certain contracts, or the Corporation or certain subsidiaries may be required to take other action such as find a suitable replacement or obtain a guarantee. At June 30, 2017, the liability recorded for these derivative contracts was $\$ 31$ million.
The following table presents the amount of additional collateral that would have been contractually required by derivative contracts and other trading agreements at June 30, 2017 if the rating agencies had downgraded their long-term senior debt ratings for the Corporation or certain subsidiaries by one incremental notch and by an additional second incremental notch.

Additional Collateral Required to be Posted Upon
Downgrade
June 30, 2017
One Second
(Dollars in millions)
Bank of America Corporation incremineatamental notch notch

Bank Am NA. (1) 349350
Bank of America, N.A. and subsidiaries ${ }^{(1)} 349350$
${ }^{(1)}$ Included in Bank of America Corporation collateral requirements in this table.
The table below presents the derivative liabilities that would be subject to unilateral termination by counterparties and the amounts of collateral that would have been contractually required at June 30, 2017 if the long-term senior debt ratings for the Corporation or certain subsidiaries had been lower by one incremental notch and by an additional second incremental notch.

Derivative Liabilities Subject to
Unilateral Termination Upon
Downgrade
June 30, 2017
One Second
(Dollars in millions) increimerteahental
notchnotch
Derivative liabilities \$545\$1,164
Collateral posted 422821
Valuation Adjustments on Derivatives
The table below presents credit valuation adjustment (CVA), DVA and FVA gains (losses) on derivatives, which are recorded in trading account profits, on a gross and net of hedge basis for the three and six months ended June 30, 2017 and 2016. For more information on the valuation adjustments on derivatives, see Note 2 - Derivatives to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

Valuation Adjustments on Derivatives ${ }^{(1)}$

| Gains (Losses) | Three Months Ended June 30 |  |  |
| :---: | :---: | :---: | :---: |
|  | 2017 | 2016 |  |
| (Dollars in millions) | Gross Net | Gross | Net |
| Derivative assets (CVA) | \$97 \$52 | \$(26 | )\$33 |
| Derivative assets/liabilities (FVA) | $27 \quad 41$ | 23 | 25 |
| Derivative liabilities (DVA) | (128)(125) | (75 | )(141) |

Derivative assets (CVA) \$258 \$78 \$(235)\$85
Derivative assets/liabilities (FVA) $76 \quad 97 \quad(33 \quad$ )(31 )
Derivative liabilities (DVA) (278)(218) 23143
At June 30, 2017 and December 31, 2016, cumulative CVA reduced the derivative assets balance by $\$ 749$ million
${ }^{(1)}$ and $\$ 1.0$ billion, cumulative FVA reduced the net derivatives balance by $\$ 220$ million and $\$ 296$ million, and cumulative DVA reduced the derivative liabilities balance by $\$ 496$ million and $\$ 774$ million, respectively.

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NOTE 3 Securities
The table below presents the amortized cost, gross unrealized gains and losses, and fair value of available-for-sale (AFS) debt securities, other debt securities carried at fair value, held-to-maturity (HTM) debt securities and AFS marketable equity securities at June 30, 2017 and December 31, 2016.

Debt Securities and Available-for-Sale Marketable Equity Securities
(Dollars in millions)
Available-for-sale debt securities
Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Commercial
Non-agency residential ${ }^{(1)}$
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed securities
Total taxable securities
Tax-exempt securities
Total available-for-sale debt securities
Other debt securities carried at fair value
Total debt securities carried at fair value
Held-to-maturity debt securities, substantially all U.S. agency mortgage-backed securities
Total debt securities ${ }^{(2)}$
Available-for-sale marketable equity securities ${ }^{(3)}$
June 30, 2017


| $\$ 193,222$ | $\$ 662$ | $\$(1,710)$ | $\$ 192,174$ |
| :--- | :--- | :--- | :--- |
| 7,441 | 84 | $(41$ | $)$ |
| 7,484 |  |  |  |
| 12,574 | 48 | $(181$ | $)$ |
| 12,441 |  |  |  |
| 1,673 | 258 | $(17$ | $)$ |
| 214,914 |  |  |  |
| 51,903 | 1,052 | $(1,949$ | $)$ |
| 214,013 |  |  |  |
| 6,595 | 9 | $(623$ | $)$ |
| 8,976 | 80 | $(5$ | $)$ |
| , 602 |  |  |  |
| 282,384 | 1,284 | $(2,579$ | $)$ |
| 18,476 | 121 | $(120$ | $) 18,089$ |
| 300,860 | 1,405 | $(2,699$ | $)$ |
| 15,771 | 245 | $(73$ | $) 15,5643$ |
| 316,631 | 1,650 | $(2,772$ | $)$ |
|  | 315,509 |  |  |
| 119,008 | 162 | $(1,840$ | $)$ |
| $\$ 435,639$ | $\$ 1,812$ | $\$(4,612$ | $) \$ 432,839$ |
| $\$ 8$ | $\$ 69$ | $\$-$ | $\$ 77$ |

December 31, 2016
Available-for-sale debt securities
Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Commercial
Non-agency residential ${ }^{(1)}$
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed securities
Total taxable securities
Tax-exempt securities
Total available-for-sale debt securities
Less: Available-for-sale securities of business held for sale ${ }^{(4)}$
Other debt securities carried at fair value
Total debt securities carried at fair value
Held-to-maturity debt securities, substantially all U.S. agency mortgage-backed securities

| \$ 190,809 | \$ 640 | \$ (1,963 | ) $\$ 189,486$ |
| :---: | :---: | :---: | :---: |
| 8,296 | 85 | (51 | ) 8,330 |
| 12,594 | 21 | (293 | ) 12,322 |
| 1,863 | 181 | (31 | ) 2,013 |
| 213,562 | 927 | (2,338 | ) 212,151 |
| 48,800 | 204 | (752 | ) 48,252 |
| 6,372 | 13 | (3 | ) 6,382 |
| 10,573 | 64 | (23 | ) 10,614 |
| 279,307 | 1,208 | (3,116 | ) 277,399 |
| 17,272 | 72 | (184 | ) 17,160 |
| 296,579 | 1,280 | (3,300 | ) 294,559 |
| (619 | ) - | - | (619 |
| 19,748 | 121 | (149 | ) 19,720 |
| 315,708 | 1,401 | (3,449 | ) 313,660 |
| 117,071 | 248 | (2,034 | ) 115,285 |

Total debt securities ${ }^{(2)}$
Available-for-sale marketable equity securities ${ }^{(3)}$ \$432,779 \$ 1,649
(1) At June 30, 2017 and December 31, 2016, the underlying collateral type included approximately 60 percent and 60 percent prime, 20 percent and 19 percent Alt-A, and 20 percent and 21 percent subprime.
The Corporation had debt securities from Fannie Mae (FNMA) and Freddie Mac (FHLMC) that each exceeded 10 percent of shareholders' equity, with an amortized cost of $\$ 161.8$ billion and $\$ 46.5$ billion, and a fair value of
(2) $\$ 160.4$ billion and $\$ 46.3$ billion at June 30, 2017. Debt securities from FNMA and FHLMC that exceeded 10 percent of shareholders' equity had an amortized cost of $\$ 156.4$ billion and $\$ 48.7$ billion, and a fair value of $\$ 154.4$ billion and $\$ 48.3$ billion at December 31, 2016.
${ }^{(3)}$ Classified in other assets on the Consolidated Balance Sheet.
(4) Represents AFS debt securities of business held for sale. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
At June 30, 2017, the accumulated net unrealized loss on AFS debt securities included in accumulated OCI was $\$ 799$ million, net of the related income tax benefit of $\$ 495$ million. At both June 30, 2017 and December 31, 2016, the Corporation had nonperforming AFS debt securities of $\$ 121$ million.

[^21]The table below presents the components of other debt securities carried at fair value where the changes in fair value are reported in other income. In the three and six months ended June 30, 2017, the Corporation recorded unrealized mark-to-market net gains of $\$ 83$ million and $\$ 199$ million, and realized net losses of
$\$ 14$ million and $\$ 118$ million, compared to unrealized mark-to-market net gains of $\$ 24$ million and net losses of $\$ 72$ million, and realized net losses of $\$ 34$ million and $\$ 37$ million for the same periods in 2016 . These amounts exclude hedge results.

Other Debt Securities Carried at Fair Value
(Dollars in millions)
Mortgage-backed securities:
Agency-collateralized mortgage obligations \$5 \$5
Non-agency residential
Total mortgage-backed securities
Non-U.S. securities ${ }^{(1)}$
3,037 3,139
3,042 3,144

Other taxable securities, substantially all asset-backed securities
12,665 16,336

Total
236240
(1) These securities are primarily used to satisfy certain international regulatory liquidity requirements.

The gross realized gains and losses on sales of AFS debt securities for the three and six months ended June 30,2017 and 2016 are presented in the table below.

Gains and Losses on Sales of AFS Debt Securities


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The table below presents the fair value and the associated gross unrealized losses on AFS debt securities and whether these securities have had gross unrealized losses for less than 12 months or for 12 months or longer at June 30, 2017 and December 31, 2016.

Temporarily Impaired and Other-than-temporarily Impaired AFS Debt Securities
(Dollars in millions)
Temporarily impaired AFS debt securities
Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Commercial
Non-agency residential
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed
securities
Total taxable securities
Tax-exempt securities
Total temporarily impaired AFS debt securities
Other-than-temporarily impaired AFS debt securities (1)
$\begin{array}{lllllllll}\text { Non-agency residential mortgage-backed securities } & - & - & 84 & (7) & ) & 84 & (7)\end{array}$
Total temporarily impaired and
other-than-temporarily impaired $\quad \$ 178,712 \$(2,479) \$ 6,714 \$(220) \$ 185,426 \$(2,699)$
AFS debt securities
December 31, 2016
Temporarily impaired AFS debt securities
Mortgage-backed securities:
Agency $\quad \$ 135,210 \$(1,846) \$ 3,770 \$(117$ ) $\$ 138,980 \$(1,963)$
Agency-collateralized mortgage obligations
Commercial
Non-agency residential
Total mortgage-backed securities
U.S. Treasury and agency securities

Non-U.S. securities
Other taxable securities, substantially all asset-backed
securities
Total taxable securities $\quad 176,945(2,923) 6,582(176) 183,527(3,099)$
$\begin{array}{lllllllll}\text { Tax-exempt securities } & 4,782 & (148 & ) & 1,873 & (36 & ) & 6,655 & (184 \\ \text { Total temporarily impaired AFS debt securities } & 181,727 & (3,071 & ) & 8,455 & (212 & ) & 190,182 & (3,283)\end{array}$
Other-than-temporarily impaired AFS debt securities
(1)
$\begin{array}{llllll}\text { Fair } & \text { Gross } & \text { Fair } & \text { Gross } & \text { Fair } & \text { Gross } \\ \text { Value } & \text { Unrealized } & \text { Vnealized } & \text { Value } & \text { Unres } & \text { Unrealized } \\ & \text { Losses } & & \text { Losses } & \text { Value } & \text { Losses }\end{array}$

| $\$ 132,527$ | $\$(1,602$ | $)$ | $\$ 3,486 \$(108$ | $)$ | $\$ 136,013$ | $\$(1,710$ | $)$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 2,275 | $(14$ | $)$ | 1,050 | $(27$ | $)$ | 3,325 | $(41$ | $)$ |
| 7,690 | $(181$ | $)$ | - | - | 7,690 | $(181$ | $)$ |  |
| 29 | $(1$ | $)$ | 145 | $(9$ | $)$ | 174 | $(10$ | $)$ |
| 142,521 | $(1,798$ | $)$ | 4,681 | $(144$ | $)$ | 147,202 | $(1,942$ | $)$ |
| 34,992 | $(622$ | $)$ | 39 | $(1$ | $)$ | 35,031 | $(623$ | $)$ |
| - | - | 9 | $(2$ | $)$ | 9 | $(2$ | $)$ |  |
| $d_{4}$ | $(1$ | $)$ | 634 | $(4$ | $)$ | 681 | $(5$ | $)$ |
| 177,560 | $(2,421$ | $)$ | 5,363 | $(151$ | $)$ | 182,923 | $(2,572$ | $)$ |
| 1,152 | $(58$ | $)$ | 1,267 | $(62$ | $)$ | 2,419 | $(120$ | $)$ |
| 178,712 | $(2,479$ | $)$ | 6,630 | $(213$ | $)$ | 185,342 | $(2,692$ | $)$ |

$178,712(2,479) 6,630(213) 185,342(2,692)$

| 3,229 | $(25$ | $)$ | 1,028 | $(26$ | $)$ | 4,257 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 9,018 | $(293$ | $)$ | - | - | 9,018 | $(293$ |
| 212 | $(1$ | $)$ | 204 | $(13$ | $)$ | 416 |
| 147,669 | $(2,165$ | $)$ | 5,002 | $(156$ | $)$ | 152,671 |
| 28,462 | $(752$ | $)$ | - | - | 2,321 | $)$ |
| 52 | $(1)$ | $)$ | 142 | $(2$ | $)$ | 194 |
| 762 | $(5$ | $)$ | 1,438 | $(18$ | $)$ | $(752$ |
|  | 2,200 | $(23$ | $)$ |  |  |  |
| 176,945 | $(2,923$ | $)$ | 6,582 | $(176$ | $)$ | 183,527 |
| 4,782 | $(148$ | $)$ | 1,873 | $(36,099$ | $)$ |  |
| 181,727 | $(3,071$ | $)$ | 8,455 | $(212$ | $)$ | 6,655 |



June 30, 2017

| Less than Twelve | Twelve Months or <br> Longer |
| :--- | :--- |
| Months | Total |

Non-agency residential mortgage-backed securities $94 \quad(1 \quad) 401 \quad(16 \quad) 495 \quad(17)$
Total temporarily impaired and other-than-temporarily impaired AFS debt securities
${ }_{\text {(1) }}$ Includes other-than-temporary impairment (OTTI) AFS debt securities on which an OTTI loss, primarily related to changes in interest rates, remains in accumulated OCI.

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The Corporation recorded OTTI losses on AFS debt securities for the three and six months ended June 30, 2017 and 2016 as presented in the table below. Substantially all OTTI losses in the three and six months ended June 30, 2017 and 2016 consisted of credit losses on non-agency residential mortgage-backed securities (RMBS) and were recorded in other income in the Consolidated Statement of Income.

Net Credit-related Impairment Losses Recognized in Earnings

|  | Three <br> Months <br> Ended June | Six Months <br> Ended June |
| :--- | :--- | :--- | :--- | :--- |
|  | 30 | 30 |

The table below presents a rollforward of the credit losses recognized in earnings for the three and six months ended June 30, 2017 and 2016 on AFS debt securities that the Corporation does not have the intent to sell or will not more-likely-than-not be required to sell.

Rollforward of OTTI Credit Losses Recognized

|  | Three <br> Months <br> Ended June <br> 30 |  | Six Months Ended June 30 |  |
| :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 |
| Balance, beginning of period | \$279 | \$269 | \$253 | \$266 |
| Additions for credit losses recognized on AFS debt securities that had no previous impairment losses | 5 | 1 | 9 | 2 |
| Additions for credit losses recognized on AFS debt securities that had previously incurred impairment losses |  | 4 | 23 | 10 |
| Reductions for AFS debt securities matured, sold or intended to be sold |  | ) (28 | (1 | (32 |
| Balance, June 30 | \$284 | \$246 | \$284 | \$246 |

The Corporation estimates the portion of a loss on a security that is attributable to credit using a discounted cash flow model and estimates the expected cash flows of the underlying collateral using internal credit, interest rate and prepayment risk models that incorporate management's best estimate of current key assumptions such as default rates, loss severity and prepayment rates. Assumptions used for the underlying loans that support the MBS can vary widely from loan to loan and are influenced by such factors as loan interest rate, geographic location of the borrower, borrower characteristics and collateral type. Based on these assumptions, the Corporation then determines how the underlying collateral cash flows will be distributed to each MBS issued from the applicable special purpose entity. Expected principal and interest cash flows on an impaired AFS debt security are discounted using the effective yield of each individual impaired AFS debt security.
Significant assumptions used in estimating the expected cash flows for measuring credit losses on non-agency RMBS were as follows at June 30, 2017.

Significant Assumptions Range ${ }^{(1)}$ 10th 90th

## Weighted- Percenfidecentile

average (2) (2)
Prepayment speed 11.5 \% $2.9 \% 20.0$ \%
$\begin{array}{llll}\text { Loss severity } & 20.3 & 9.2 & 37.4\end{array}$
$\begin{array}{llll}\text { Life default rate } & 22.0 & 1.2 & 79.2\end{array}$
${ }^{(1)}$ Represents the range of inputs/assumptions based upon the underlying collateral.
(2) The value of a variable below which the indicated percentile of observations will fall.

Annual constant prepayment speed and loss severity rates are projected considering collateral characteristics such as loan-to-value (LTV), creditworthiness of borrowers as measured using Fair Isaac Corporation (FICO) scores, and geographic concentrations. The weighted-average severity by collateral type was 17.2 percent for prime, 18.9 percent for Alt-A and 30.4 percent for subprime at June 30, 2017. Additionally, default rates are projected by considering collateral characteristics including, but not limited to, LTV, FICO and geographic concentration. Weighted-average life default rates by collateral type were 15.8 percent for prime, 22.8 percent for Alt-A and 23.0 percent for subprime at June 30, 2017.

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The remaining contractual maturity distribution and yields of the Corporation's debt securities carried at fair value and HTM debt securities at June 30, 2017 are summarized in the table below. Actual duration and yields may differ as prepayments on the loans underlying the mortgages or other asset-backed securities (ABS) are passed through to the Corporation.

Maturities of Debt Securities Carried at Fair Value and Held-to-maturity Debt Securities
June 30, 2017

|  | Due after One | Due after Five |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Due in One | Year | Years | Due after | Total |
| Year or Less | through Five | through Ten | Ten Years |  |
|  | Years | Years |  |  |

(Dollars in millions) Amount Yield ${ }^{(1)}$ Amount Yield ${ }^{(1)}$ Amount Yield ${ }^{(1)}$ Amount Yield ${ }^{(1)}$ Amount Yield ${ }^{(1)}$ Amortized cost of debt securities carried at fair value
Mortgage-backed securities:

| Agency | \$3 | 4.67 \% | \$42 | 3.73 \% | \$641 | 2.57 \% | \$ 192,536 | 3.23 | \$193,222 | 3.23 \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Agency-collateralized mortgage obligations | - | - | - | - | - | - | 7,445 | 3.18 | 7,445 | 3.18 |
| Commercial | 48 | 7.64 | 485 | 1.90 | 11,529 | 2.44 | 512 | 2.71 | 12,574 | 2.45 |
| Non-agency residential |  | - | - | - | 28 | 0.01 | 4,527 | 8.75 | 4,555 | 8.70 |
| Total mortgage-backed securities | 51 | 7.47 | 527 | 2.05 | 12,198 | 2.44 | 205,020 | 3.35 | 217,796 | 3.30 |
| U.S. Treasury and agency securities | 718 | 0.64 | 25,714 | 1.51 | 25,404 | 1.88 | 67 | 5.09 | 51,903 | 1.69 |
| Non-U.S. securities | 17,221 | 0.48 | 1,755 | 1.36 | 88 | 1.17 | 194 | 6.65 | 19,258 | 0.62 |
| Other taxable securities, substantially all asset-backed securities | 2,447 | 2.37 | 4,008 | 2.37 | 1,514 | 3.00 | 1,229 | 3.26 | 9,198 | 2.59 |
| Total taxable securities | 20,437 | 0.73 | 32,004 | 1.62 | 39,204 | 2.10 | 206,510 | 3.35 | 298,155 | 2.82 |
| Tax-exempt securities | 536 | 1.75 | 6,577 | 1.81 | 9,076 | 1.70 | 2,287 | 1.83 | 18,476 | 1.76 |
| Total amortized cost of debt securities carried at fair value | \$20,973 | 0.75 | \$38,581 | 1.65 | \$48,280 | 2.02 | \$208,797 | 3.34 | \$316,631 | 2.76 |
| Amortized cost of HTM debt securities ${ }^{(2)}$ | \$- | - | \$22 | 3.79 | \$928 | 2.39 | \$118,058 | 3.02 | \$119,008 | 3.02 |

Debt securities carried at
fair value
Mortgage-backed
securities:

| Agency | $\$ 3$ | $\$ 43$ | $\$ 646$ | $\$ 191,482$ | $\$ 192,174$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Agency-collateralized <br> mortgage obligations | - | - | - | 7,489 | 7,489 |
| Commercial | 48 | 486 | 11,407 | 500 | 12,441 |
| Non-agency residential | - | - | 37 | 4,914 | 4,951 |
| Total mortgage-backed <br> securities | 51 | 529 | 12,090 | 204,385 | 217,055 |

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| U.S. Treasury and agency | 719 | 25,537 | 25,097 | 70 | 51,423 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| securities | 17,218 | 1,703 | 146 | 200 | 19,267 |
| Non-U.S. securities <br> Other taxable securities, <br> substantially all <br> asset-backed securities <br> Total taxable securities | 2,449 | 3,998 | 1,538 | 1,302 | 9,287 |
| Tax-exempt securities | 536 | 31,767 | 38,871 | 205,957 | 297,032 |
| Total debt securities <br> carried at fair value | $\$ 20,973$ | $\$ 38,587$ | 9,069 | 2,285 | 18,477 |
| Fair value of HTM debt <br> securities (2) | $\$-$ | $\$ 22$ | $\$ 47,940$ | $\$ 208,242$ | $\$ 315,509$ |

The average yield is computed based on a constant effective interest rate over the contractual life of each security.
${ }^{(1)}$ The average yield considers the contractual coupon and the amortization of premiums and accretion of discounts, excluding the effect of related hedging derivatives.
${ }^{(2)}$ Substantially all U.S. agency MBS.

NOTE 4 Outstanding Loans and Leases
The following tables present total outstanding loans and leases and an aging analysis for the Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at June 30, 2017 and December 31, 2016.
During the second quarter of 2017, the Corporation completed the sale of its non-U.S. consumer credit card business. This
business, which at December 31, 2016 included $\$ 9.2$ billion of non-U.S. credit card loans and the related allowance for loan and lease losses of $\$ 243$ million, was presented in assets of business held for sale on the Consolidated Balance Sheet. In this Note, all applicable amounts for December 31, 2016 include these balances, unless otherwise noted. For additional information, see Note 1 - Summary of Significant Accounting Principles.

June 30, 2017

| (Dollars in millions) | 30-59 <br> Days <br> Past Due <br> (1) | 60-89 <br> Days <br> Past Due <br> (1) | 90 Days <br> or <br> More <br> Past Due <br> (2) | Total Past <br> Due 30 <br> Days <br> or More | Total Current or Less Than 30 Days | Purchased Credit-impaire (4) | Loans <br> Accounted <br> for Under Total <br> the Fair Outstandings |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Consumer real estate
Core portfolio

| Residential mortgage | $\$ 995$ | $\$ 264$ | $\$ 1,029$ | $\$ 2,288$ | $\$ 163,921$ | $\$ 166,209$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Home equity | 202 | 105 | 427 | 734 | 45,908 | 46,642 |

Non-core portfolio

| Residential mortgage (5) | 1,073 | 519 | 4,113 | 5,705 | 16,258 | \$ 9,274 |  | 31,237 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Home equity | 234 | 120 | 677 | 1,031 | 11,099 | 3,170 |  | 15,300 |
| Credit card and other consumer |  |  |  |  |  |  |  |  |
| U.S. credit card | 465 | 313 | 772 | 1,550 | 89,226 |  |  | 90,776 |
| Direct/Indirect consumer (6) | 238 | 69 | 33 | 340 | 93,153 |  |  | 93,493 |
| Other consumer ${ }^{(7)}$ | 20 | 5 | 6 | 31 | 2,627 |  |  | 2,658 |
| Total consumer | 3,227 | 1,395 | 7,057 | 11,679 | 422,192 | 12,444 |  | 446,315 |
| Consumer loans accounted for under the fair value option ${ }^{(8)}$ |  |  |  |  |  |  | \$ 1,035 | 1,035 |
| Total consumer loans and leases | 3,227 | 1,395 | 7,057 | 11,679 | 422,192 | 12,444 | 1,035 | 447,350 |
| Commercial |  |  |  |  |  |  |  |  |
| U.S. commercial | 350 | 446 | 361 | 1,157 | 276,518 |  |  | 277,675 |
| Commercial real estate ${ }^{(9)}$ | 24 | 10 | 50 | 84 | 59,093 |  |  | 59,177 |
| Commercial lease financing | 54 | 72 | 27 | 153 | 21,675 |  |  | 21,828 |
| Non-U.S. commercial | 121 | 74 | - | 195 | 90,591 |  |  | 90,786 |
| U.S. small business commercial | 52 | 34 | 80 | 166 | 13,394 |  |  | 13,560 |
| Total commercial | 601 | 636 | 518 | 1,755 | 461,271 |  |  | 463,026 |

Commercial loans accounted for under the fair value option ${ }^{(8)}$

| Total commercial <br> loans and leases <br> Total loans and leases <br> (10) | 601 | 636 | 518 | 1,755 | 461,271 |  | 6,290 | 469,316 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| Percentage of <br> outstandings | 0.42 | $\%$ | 0.22 | $\%$ | 0.83 | $\%$ | 1.47 | $\%$ | 96.38 | $\%$ | 1.35 | $\%$ | 0.80 | $\%$ | 100.00 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Consumer real estate loans 30-59 days past due includes fully-insured loans of $\$ 837$ million and nonperforming
${ }^{(1)}$ loans of $\$ 250$ million. Consumer real estate loans $60-89$ days past due includes fully-insured loans of $\$ 435$ million and nonperforming loans of $\$ 203$ million.
${ }^{(2)}$ Consumer real estate includes fully-insured loans of $\$ 3.7$ billion.
(3) Consumer real estate includes $\$ 2.3$ billion and direct/indirect consumer includes $\$ 18$ million of nonperforming loans.
${ }^{(4)}$ Purchased credit-impaired (PCI) loan amounts are shown gross of the valuation allowance.
${ }^{(5)}$ Total outstandings includes pay option loans of $\$ 1.6$ billion. The Corporation no longer originates this product. Total outstandings includes auto and specialty lending loans of $\$ 49.1$ billion, unsecured consumer lending loans of
(6) $\$ 509$ million, U.S. securities-based lending loans of $\$ 39.8$ billion, non-U.S. consumer loans of $\$ 2.9$ billion, student loans of $\$ 463$ million and other consumer loans of $\$ 657$ million.
(7) Total outstandings includes consumer finance loans of $\$ 420$ million, consumer leases of $\$ 2.1$ billion and consumer overdrafts of $\$ 155$ million.
Consumer loans accounted for under the fair value option were residential mortgage loans of $\$ 666$ million and
(8) home equity loans of $\$ 369$ million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $\$ 3.2$ billion and non-U.S. commercial loans of $\$ 3.1$ billion. For additional information, see Note 14 - Fair Value Measurements and Note 15 - Fair Value Option.
(9) Total outstandings includes U.S. commercial real estate loans of $\$ 55.6$ billion and non-U.S. commercial real estate loans of $\$ 3.6$ billion.
The Corporation pledged $\$ 152.8$ billion of loans to secure potential borrowing capacity with the Federal Reserve

## (10)

 and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.
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December 31, 2016
(Dollars in millions) $\begin{array}{lllll} & 30-59 & 60-89 & 90 \text { Days } & \text { Total Past } \\ \text { Days } & \text { Days } & \text { or } & \text { Due } 30 \\ \begin{array}{llll}\text { Past Due } \\ \text { (1) }\end{array} & \begin{array}{l}\text { Past Due } \\ \text { (1) }\end{array} & \begin{array}{l}\text { More } \\ \text { Past Due }\end{array} & \begin{array}{l}\text { Days } \\ \text { (2) More }\end{array}\end{array}$
Total
Current or
Less Than
30 Days
Past Due ${ }^{(3)}$

Loans
Accounted for Under Total the Fair Outstandings Value Option
Consumer real estate
Core portfolio
Residential mortgage \$1,340 \$425
Home equity 239
Non-core portfolio
$\begin{array}{lll}\underset{(5)}{\text { Residential mortgage }} & 1,338 & 674 \\ \text { Home equity } & 260 & 136\end{array}$ (5)
$\begin{array}{lll}\begin{array}{ll}\text { Residential mortgage } \\ (5)\end{array} & 1,338 & 674 \\ \text { Home equity } & 260 & 136\end{array}$
Credit card and other consumer
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer (6)
Other consumer (7)
Total consumer
Consumer loans
accounted for under
$472 \quad 341 \quad 782$
37
27
\$1,213 \$2,978
\$153,519
\$ 156,497
49,373
5,343 7,355

48,578
the fair value option ${ }^{(8)}$
$\begin{array}{llllllllll}\text { Total consumer loans } & 3,984 & 1,795 & 8,727 & 14,506 & 428,076 & 13,738 & 1,051 & 457,371\end{array}$
Commercial
U.S. commercia
$952 \quad 263 \quad 400$
Commercial rea estate ${ }^{(9)}$
$20 \quad 10 \quad 56$

| Commercial lease <br> financing | 167 | 21 | 27 | 215 |
| :--- | :--- | :--- | :--- | :--- |

Non-U.S. commercial 348
U.S. small business
commercial
Total commercial 1,583 $347 \quad 57$
Commercial loans
accounted for under
$\qquad$
the fair value option ${ }^{(8)}$
Total commercial
$1,583 \quad 347 \quad 572$
572
loans and leases
Total consumer and
commercial loans and \$5,567 $\quad \$ 2,142 \quad \$ 9,299 \quad \$ 17,008 \quad \$ 878,066 \quad \$ 13,738 \quad \$ 7,085 \quad \$ 915,897$
leases ${ }^{(10)}$
Less: Loans of business held for
sale ${ }^{(10)}$

Total loans and leases
(11)

Percentage of outstandings (10)
$0.61 \quad \% \quad 0.23 \quad \% \quad 1.02 \quad \% \quad 1.86 \quad \% \quad 95.87 \quad \% \quad 1.50 \quad \% \quad 0.77 \quad \% \quad 100.00 \quad \%$

Consumer real estate loans 30-59 days past due includes fully-insured loans of $\$ 1.1$ billion and nonperforming
(1) loans of $\$ 266$ million. Consumer real estate loans 60-89 days past due includes fully-insured loans of $\$ 547$ million and nonperforming loans of $\$ 216$ million.
(2) Consumer real estate includes fully-insured loans of $\$ 4.8$ billion.
(3) Consumer real estate includes $\$ 2.5$ billion and direct/indirect consumer includes $\$ 27$ million of nonperforming loans.
(4) PCI loan amounts are shown gross of the valuation allowance.
(5) Total outstandings includes pay option loans of $\$ 1.8$ billion. The Corporation no longer originates this product. Total outstandings includes auto and specialty lending loans of $\$ 48.9$ billion, unsecured consumer lending loans of
(6) $\$ 585$ million, U.S. securities-based lending loans of $\$ 40.1$ billion, non-U.S. consumer loans of $\$ 3.0$ billion, student loans of $\$ 497$ million and other consumer loans of $\$ 1.1$ billion.
(7) Total outstandings includes consumer finance loans of $\$ 465$ million, consumer leases of $\$ 1.9$ billion and consumer overdrafts of $\$ 157$ million.
Consumer loans accounted for under the fair value option were residential mortgage loans of $\$ 710$ million and
(8) home equity loans of $\$ 341$ million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $\$ 2.9$ billion and non-U.S. commercial loans of $\$ 3.1$ billion. For more information, see Note 14 - Fair Value Measurements and Note 15 - Fair Value Option.
(9) Total outstandings includes U.S. commercial real estate loans of $\$ 54.3$ billion and non-U.S. commercial real estate loans of $\$ 3.1$ billion.
(10) Includes non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet.
The Corporation pledged $\$ 143.1$ billion of loans to secure potential borrowing capacity with the Federal Reserve
${ }^{(11)}$ Bank and FHLB. This amount is not included in the parenthetical disclosure of loans and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.
The Corporation categorizes consumer real estate loans as core and non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with its current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise (GSE) underwriting guidelines, or otherwise met the Corporation's underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010 , loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a troubled debt restructuring (TDR) prior to 2016 are generally characterized as non-core loans, and are principally run-off portfolios.
The Corporation has entered into long-term credit protection agreements with FNMA and FHLMC on loans totaling $\$ 6.6$ billion
and $\$ 6.4$ billion at June 30, 2017 and December 31, 2016, providing full credit protection on residential mortgage loans that become severely delinquent. All of these loans are individually insured and therefore the Corporation does not record an allowance for credit losses related to these loans.
Nonperforming Loans and Leases
The Corporation classifies junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At June 30, 2017 and December 31, 2016, $\$ 374$ million and $\$ 428$ million of such junior-lien home equity loans were included in nonperforming loans.
The Corporation classifies consumer real estate loans that have been discharged in Chapter 7 bankruptcy and not reaffirmed by the borrower as TDRs, irrespective of payment history or delinquency status, even if the repayment terms for the loan have not been otherwise modified. The Corporation continues to have

[^22]a lien on the underlying collateral. At June 30, 2017, nonperforming loans discharged in Chapter 7 bankruptcy with no change in repayment terms were $\$ 451$ million of which $\$ 274$ million were current on their contractual payments, while $\$ 147$ million were 90 days or more past due. Of the contractually current nonperforming loans, approximately 81 percent were discharged in Chapter 7 bankruptcy over 12 months ago, and approximately 71 percent were discharged 24 months or more ago.
During the three and six months ended June 30, 2017, the Corporation sold nonperforming and other delinquent consumer real estate loans with a carrying value of $\$ 323$ million and $\$ 465$ million, including $\$ 204$ million of PCI loans for both periods, compared to $\$ 417$ million and $\$ 1.4$ billion, including $\$ 150$ million and $\$ 324$ million of PCI loans, for the same periods in 2016.

During the six months ended June 30, 2017, the Corporation transferred nonperforming loans with a net carrying value of $\$ 198$ million to held-for-sale. There were no transfers of nonperforming loans to held-for-sale for the same period in 2016.
The table below presents the Corporation's nonperforming loans and leases including nonperforming TDRs, and loans accruing past due 90 days or more at June 30, 2017 and December 31, 2016. Nonperforming loans held-for-sale (LHFS) are excluded from nonperforming loans and leases as they are recorded at either fair value or the lower of cost or fair value. For more information on the criteria for classification as nonperforming, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

Credit Quality
(Dollars in millions)

| Nonperforming | Accruing Past Due |
| :--- | :--- |
| Loans and Leases | 90 Days or More |
| June 30 December 31 | June 30 December 31 |
| $2017 \quad 2016$ | $2017 \quad 2016$ |

Consumer real estate
Core portfolio
Residential mortgage ${ }^{(1)}$
Home equity
\$1,051 \$ 1,274 \$398 \$ 486

Non-core portfolio
Residential mortgage ${ }^{(1)}$
Home equity $\quad 1,711$
Credit card and other consumer

| U.S. credit card | $\mathrm{n} / \mathrm{a}$ | $\mathrm{n} / \mathrm{a}$ | 772782 |
| :--- | :--- | :--- | :--- | :--- |

Non-U.S. credit card n/a n/a $\quad 66$
$\begin{array}{lllll}\text { Direct/Indirect consumer } & 19 & 28 & 32 & 34\end{array}$
$\begin{array}{lllll}\text { Other consumer } & 3 & 2 & 3 & 4 \\ \text { Total consumer } & 5,282 & 6,004 & 4,506 & 5,679\end{array}$
Commercial
$\begin{array}{lllll}\text { U.S. commercial } & 1,039 & 1,256 & 74 & 106\end{array}$

| Commercial real estate | 123 | 72 | - |
| :--- | :--- | :--- | :--- |

$\begin{array}{lllll}\text { Commercial lease financing } & 28 & 36 & 22 & 19\end{array}$
Non-U.S. commercial 269279 - 5
U.S. small business commercial $61 \quad 60 \quad 68 \quad 71$
$\begin{array}{lllll}\text { Total commercial } & 1,520 & 1,703 & 164 & 208\end{array}$
Total loans and leases \$6,802 \$ 7,707 \$4,670 \$ 5,887
${ }^{(1)}$ Residential mortgage loans in the core and non-core portfolios accruing past due 90 days or more are fully-insured loans. At June 30, 2017 and December 31, 2016, residential mortgage includes $\$ 2.4$ billion and $\$ 3.0$ billion of loans on which interest has been curtailed by the Federal Housing Administration (FHA), and therefore are no
longer accruing interest, although principal is still insured, and $\$ 1.3$ billion and $\$ 1.8$ billion of loans on which interest is still accruing.
$\mathrm{n} / \mathrm{a}=$ not applicable

## Credit Quality Indicators

The Corporation monitors credit quality within its Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments based on primary credit quality indicators. Within the consumer portfolio segments, the primary credit quality indicators are refreshed LTV and refreshed FICO score. Refreshed LTV measures the carrying value of the loan as a percentage of the value of the property securing the loan, refreshed quarterly. FICO score measures the creditworthiness of the borrower based on the financial obligations of the borrower and the borrower's credit history. FICO scores are typically refreshed quarterly or more frequently. Within the Commercial portfolio segment, loans are evaluated using the internal classifications of pass rated or
reservable criticized as the primary credit quality indicators. In addition to these primary credit quality indicators, the Corporation uses other credit quality indicators for certain types of loans. For more information on the portfolio segments and credit quality indicators, see Note 1 - Summary of Significant Accounting Principles and Note 4 Outstanding Loans and Leases to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
The following tables present certain credit quality indicators for the Corporation's Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at June 30, 2017 and December 31, 2016.

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Consumer Real Estate - Credit Quality Indicators ${ }^{1)}$
(Dollars in millions)
June 30, 2017

| Core | Non-core |  | Core | Non-core |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Residen | Residential |  | Home | Home |  |
| Mortgage <br> (2) | Mortgage | $\text { PCI }{ }^{(3)}$ | Equity | Equity | $\begin{aligned} & \text { Equity } \\ & \text { PCI } \end{aligned}$ |

## Refreshed LTV ${ }^{(4)}$

Less than or equal to 90 percent
Greater than 90 percent but less than or equal to
100 percent
Greater than 100 percent
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
${ }^{(1)}$ Excludes $\$ 1.0$ billion of loans accounted for under the fair value option.
${ }^{(2)}$ Excludes PCI loans.
${ }^{(3)}$ Includes $\$ 1.4$ billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
${ }^{(5)}$ Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.
Credit Card and Other Consumer - Credit Quality Indicators
June 30, 2017
(Dollars in millions)
Refreshed FICO score
Less than 620

| U.S. | Direct/Indirect | Other |
| :--- | :--- | :--- |
| Credit | Consumer |  |
| Card | Consumer | (1) |

Greater than or equal to 620 and less than 680
\$4,349 \$ 1,550 \$ 169

Greater than or equal to 680 and less than $740-34147-12257-425$
Greater than or equal to $740 \quad 40,287 \quad 33,764 \quad 1,688$
Other internal credit metrics ${ }^{(2,3)} \quad$ - $\quad 43,884 \quad 159$
Total credit card and other consumer $\$ 90,776 \$ 93,493 \quad \$ 2,658$
(1) At June 30, 2017, 16 percent of the other consumer portfolio was associated with portfolios from certain consumer finance businesses that the Corporation previously exited.
${ }^{(2)}$ Other internal credit metrics may include delinquency status, geography or other factors.
Direct/indirect consumer includes $\$ 42.8$ billion of securities-based lending which is overcollateralized and
${ }^{(3)}$ therefore has minimal credit risk and $\$ 464$ million of loans the Corporation no longer originates, primarily student loans.

Commercial - Credit Quality Indicator ${ }^{(1)}$
June 30, 2017
(Dollars in millions)
U.S. Commercial Non-U.S.

| Commercifeal Estate | Commercial Commercial U.S. Small |  |
| :--- | :--- | :--- |
|  | Lease | Business |
|  | Financing | Commercial |
|  |  | (2) |

Risk ratings
Pass rated
Reservable criticized
Refreshed FICO score ${ }^{(3)}$
Less than 620

| $\$ 268,793$ | $\$ 58,538$ | $\$ 21,103$ | $\$ 87,639$ | $\$ 376$ |
| :--- | :--- | :--- | :--- | :--- |
| 8,882 | 639 | 725 | 3,147 | 57 |

Greater than or equal to 620 and less than 680221
Greater than or equal to 680 and less than 740 ..... 1,863
Greater than or equal to 740 ..... 3,593
Other internal credit metrics $(3,4)$ ..... 6,827
Total commercial ..... \$277,675 \$ 59,177 \$ 21,828 \$ 90,786 \$ 13,560
${ }^{(1)}$ Excludes $\$ 6.3$ billion of loans accounted for under the fair value option.
U.S. small business commercial includes $\$ 806$ million of criticized business card and small business loans which
(2) are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At June 30, 2017, 99 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
${ }^{(4)}$ Other internal credit metrics may include delinquency status, application scores, geography or other factors.
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Consumer Real Estate - Credit Quality Indicators ${ }^{1)}$
(Dollars in millions)

## Refreshed LTV (4)

Less than or equal to 90 percent
Greater than 90 percent but less than or equal to 100 percent
Greater than 100 percent
Fully-insured loans ${ }^{(5)}$
Total consumer real estate
Refreshed FICO score
Less than 620
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Fully-insured loans ${ }^{(5)}$
Total consumer real estate

| December 31, 2016 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Core <br> Residentia <br> Mortgage <br> (2) | Non-core aResidential Mortgage (2) | Residentia <br> Mortgage <br> PCI ${ }^{(3)}$ | Core <br> Home <br> Equity <br> (2) | Non-core Home Equity (2) | Home Equity PCI |
| \$129,737 | \$ 14,280 | \$ 7,811 | \$47,171 | \$8,480 | \$1,942 |
| 3,634 | 1,446 | 1,021 | 1,006 | 1,668 | 630 |
| 1,872 | 1,972 | 1,295 | 1,196 | 3,311 | 1,039 |
| 21,254 | 7,475 |  | - | - |  |
| \$ 156,497 | \$ 25,173 | \$ 10,127 | \$49,373 | \$ 13,459 | \$3,611 |
| \$2,479 | \$ 3,198 | \$ 2,741 | \$1,254 | \$2,692 | \$559 |
| 5,094 | 2,807 | 2,241 | 2,853 | 3,094 | 636 |
| 22,629 | 4,512 | 2,916 | 10,069 | 3,176 | 1,069 |
| 105,041 | 7,181 | 2,229 | 35,197 | 4,497 | 1,347 |
| 21,254 | 7,475 | - | - | - | - |
| \$156,497 | \$ 25,173 | \$ 10,127 | \$49,373 | \$ 13,459 | \$3,611 |

${ }^{(1)}$ Excludes $\$ 1.1$ billion of loans accounted for under the fair value option.
${ }^{(2)}$ Excludes PCI loans.
${ }^{(3)}$ Includes $\$ 1.6$ billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
${ }^{(5)}$ Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.
Credit Card and Other Consumer - Credit Quality Indicators
December 31, 2016
(Dollars in millions)
Refreshed FICO score
Less than 620 \$4
Greater than or equal to 620 and less than 680
Greater than or equal to 680 and less than 740
Greater than or equal to 740
Other internal credit metrics $(2,3,4)$
Total credit card and other consumer

| U.S. <br> Credit <br> Card | Non-U.S. <br> Credit <br> Card | Direct/Indirect <br> Consumer | Other <br> Consumer <br> (1) |
| :--- | :--- | :--- | :--- |
| $\$ 4,431$ | $\$-$ | $\$ 1,478$ | $\$ 187$ |
| 12,364 | - | 2,070 | 222 |
| 34,828 | - | 12,491 | 404 |
| 40,655 | - | 33,420 | 1,525 |
| - | 9,214 | 44,630 | 161 |
| $\$ 92,278$ | $\$ 9,214$ | $\$ 94,089$ | $\$ 2,499$ |

(1) At December 31, 2016, 19 percent of the other consumer portfolio was associated with portfolios from certain consumer finance businesses that the Corporation previously exited.
${ }^{(2)}$ Other internal credit metrics may include delinquency status, geography or other factors.
Direct/indirect consumer includes $\$ 43.1$ billion of securities-based lending which is overcollateralized and
${ }^{(3)}$ therefore has minimal credit risk and $\$ 499$ million of loans the Corporation no longer originates, primarily student loans.
Non-U.S. credit card represents the U.K. credit card portfolio which was evaluated using internal credit metrics,
${ }^{(4)}$ including delinquency status. At December 31, 2016, 98 percent of this portfolio was current or less than 30 days past due, one percent was 30-89 days past due and one percent was 90 days or more past due.

Commercial - Credit Quality Indicators ${ }^{1)}$
December 31, 2016

|  | U.S. <br> Commercimeal Estate | Commercial | Commercial <br> Lease <br> Financing | Non-U.S. <br> Commercial | U.S. Small <br> Business <br> Commercial <br> (2) |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Risk ratings |  |  |  |  |  |

${ }^{(1)}$ Excludes $\$ 6.0$ billion of loans accounted for under the fair value option. U.S. small business commercial includes $\$ 755$ million of criticized business card and small business loans which
${ }_{(2)}$ are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At December 31, 2016, 98 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
${ }^{(4)}$ Other internal credit metrics may include delinquency status, application scores, geography or other factors.

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## Impaired Loans and Troubled Debt Restructurings

A loan is considered impaired when, based on current information, it is probable that the Corporation will be unable to collect all amounts due from the borrower in accordance with the contractual terms of the loan. Impaired loans include nonperforming commercial loans and all consumer and commercial TDRs. Impaired loans exclude nonperforming consumer loans and nonperforming commercial leases unless they are classified as TDRs. Loans accounted for under the fair value option are also excluded. PCI loans are excluded and reported separately on page 101. For more information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Consumer Real Estate
Impaired consumer real estate loans within the Consumer Real Estate portfolio segment consist entirely of TDRs. Excluding PCI loans, most modifications of consumer real estate loans meet the definition of TDRs when a binding offer is extended to a borrower. For more information on impaired consumer real estate loans, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. Consumer real estate loans that have been discharged in Chapter 7 bankruptcy with no change in repayment terms and not reaffirmed by the borrower of $\$ 1.3$ billion were included in TDRs at June 30, 2017, of which $\$ 451$ million were classified as nonperforming and $\$ 465$ million were loans fully-insured by the

FHA. For more information on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note.
At June 30, 2017 and December 31, 2016, remaining commitments to lend additional funds to debtors whose terms have been modified in a consumer real estate TDR were immaterial. Consumer real estate foreclosed properties totaled $\$ 285$ million and $\$ 363$ million at June 30, 2017 and December 31, 2016. The carrying value of consumer real estate loans, including fully-insured and PCI loans, for which formal foreclosure proceedings were in process as of June 30, 2017 was $\$ 4.1$ billion. During the three and six months ended June 30, 2017, the Corporation reclassified $\$ 226$ million and $\$ 426$ million of consumer real estate loans to foreclosed properties or, for properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans), to other assets. This compared to reclassifications of $\$ 392$ million and $\$ 808$ million for the same periods in 2016. The reclassifications represent non-cash investing activities and, accordingly, are not reflected on the Consolidated Statement of Cash Flows. The table below provides the unpaid principal balance, carrying value and related allowance at June 30, 2017 and December 31, 2016, and the average carrying value and interest income recognized for the three and six months ended June 30, 2017 and 2016 for impaired loans in the Corporation's Consumer Real Estate portfolio segment. Certain impaired consumer real estate loans do not have a related allowance as the current valuation of these impaired loans exceeded the carrying value, which is net of previously recorded charge-offs.

Impaired Loans - Consumer Real Estate
(Dollars in millions)
With no recorded allowance
Residential mortgage
Home equity
With an allowance recorded
Residential mortgage
Home equity
Total
Residential mortgage
Home equity

| June 30, 2017 |  | December 31, 2016 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Unpaid | Carrying <br> Value | Related | Unpaid | Carrying Related |  |
|  |  |  | Principal Balance | Value | Allowance |
| \$9,966 | \$ 7,696 | \$- | \$11,151 | \$8,695 | \$ |
| 3,692 | 1,987 | - | 3,704 | 1,953 | - |
| \$3,525 | \$ 3,424 | \$211 | \$4,041 | \$3,936 | \$ 219 |
| 978 | 886 | 170 | 910 | 824 | 137 |
| \$ 13,491 | \$ 11,120 | \$211 | \$15,192 | \$ 12,631 | \$ 219 |
| 4,670 | 2,873 | 170 | 4,614 | 2,777 | 137 |

## Edgar Filing: BANK OF AMERICA CORP /DE/ - Form 10-Q

| Three Months Ended June 30 |  |  |  | Six Months Ended June 30 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2017 |  | 2016 |  | 2017 |  | 2016 |  |
| Average | Interest | Average | Interest | Average | Interest | Average | Interest |
| Carrying | Income <br> Recognized | Carrying | Income Recognized |  |  |  | Income <br> Recognized |
| Value | (1) | Value | (1) | Value | $\begin{aligned} & \mathrm{Re} \\ & (1) \end{aligned}$ | Value | (1) |

With no recorded allowance

| Residential mortgage | $\$ 7,886$ | $\$$ | 81 | $\$ 10,345$ | $\$ 100$ | $\$ 8,192$ | $\$ 160$ | $\$ 10,925$ | $\$ 194$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Home equity | 1,999 | 28 | 1,870 | 17 | 2,000 | 55 | 1,843 | 30 |  | Interest income recognized includes interest accrued and collected on the outstanding balances of accruing

${ }^{(1)}$ impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

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The table below presents the June 30, 2017 and 2016 unpaid principal balance, carrying value, and average pre- and post-modification interest rates on consumer real estate loans that were modified in TDRs during the three and six months ended June 30, 2017 and 2016, and net charge-offs recorded during the period
in which the modification occurred. The following Consumer Real Estate portfolio segment tables include loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Consumer Real Estate - TDRs Entered into During the Three Months Ended June 30, 2017 and $2016{ }^{(1)}$

June 30, 2017
Three
Months
Ended June
30, 2017
Net


June 30, 2016

| Residential mortgage $\$ 437$ | $\$ 405$ | 4.68 | $\%$ | 4.42 | $\%$ | $\$$ | 3 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Home equity | 250 | 200 | 3.81 |  | 3.27 |  | 16 |  |
| Total | $\$ 687$ | $\$ 605$ | 4.36 |  | 4.00 |  | $\$$ | 19 |

Consumer Real Estate - TDRs Entered into During the Six Months Ended June 30, 2017 and $2016{ }^{(1)}$


During the three and six months ended June 30, 2017, the Corporation forgave principal of $\$ 0$ million and $\$ 0$
${ }^{(1)}$ million related to residential mortgage loans in connection with TDRs compared to $\$ 1$ million and $\$ 11$ million for the same periods in 2016.
(2)

The post-modification interest rate reflects the interest rate applicable only to permanently completed modifications, which exclude loans that are in a trial modification period.
(3) Net charge-offs include amounts recorded on loans modified during the period that are no longer held by the Corporation at June 30, 2017 and 2016 due to sales and other dispositions.

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The table below presents the June 30, 2017 and 2016 carrying value for consumer real estate loans that were modified in a TDR during the three and six months ended June 30, 2017 and 2016 by type of modification.

Consumer Real Estate - Modification Programs
(Dollars in millions)
Modifications under government programs
Contractual interest rate reduction
Principal and/or interest forbearance
Other modifications ${ }^{(1)}$
Total modifications under government programs
Modifications under proprietary programs
$\begin{array}{llllll}\text { Contractual interest rate reduction } & 19 & 1 & 14 & 2\end{array}$
Capitalization of past due amounts
Principal and/or interest forbearance
Other modifications ${ }^{(1)}$
Total modifications under proprietary programs
Trial modifications
Loans discharged in Chapter 7 bankruptcy (2)
Total modifications

| TDRs Entered into During the Three Months Ended June 30 |  |  |  |
| :---: | :---: | :---: | :---: |
| 2017 |  | 2016 |  |
| Resi | defrtiale | Resi | effriale |
| Mort | gergatity | Mort | Exgelity |
| \$9 | \$ 2 | \$23 | \$ 12 |
|  | 1 | - | 4 |
| 3 | - | 8 | - |
| 12 | 3 | 31 | 16 |
| 19 | 1 | 14 | 2 |
| 9 | - | 5 |  |
| 3 | - | 2 | 1 |
| 3 | 13 | 9 | 17 |
| 34 | 14 | 30 | 20 |
| 222 | 165 | 300 | 145 |
| 45 | 19 | 44 | 19 |
| \$313 | \$ 201 | \$405 | \$ 200 |

TDRs Entered into During
the Six Months Ended
June 30
20172016
Modifications under government programs
Contractual interest rate reduction
Principal and/or interest forbearance
Other modifications ${ }^{(1)} \quad 8 \quad-\quad 19 \quad 1$
$\begin{array}{llllll}\text { Total modifications under government programs } & 42 & 7 & 85 & 25\end{array}$
Modifications under proprietary programs
$\begin{array}{llllll}\text { Contractual interest rate reduction } & 39 & 33 & 32 & 28\end{array}$
$\begin{array}{llllll}\text { Capitalization of past due amounts } & 16 & 5 & 14 & 3\end{array}$
$\begin{array}{llllll}\text { Principal and/or interest forbearance } & 5 & 4 & 6 & 16\end{array}$
$\begin{array}{llllll}\text { Other modifications }{ }^{(1)} & 4 & 40 & 11 & 20\end{array}$
$\begin{array}{lllllll}\text { Total modifications under proprietary programs } & 64 & 82 & 63 & 67\end{array}$
$\begin{array}{lllll}\text { Trial modifications } & \begin{array}{llll}382 & 240 & 540 & 230 \\ 93 & 36 & 97 & 39\end{array}, l\end{array}$
Loans discharged in Chapter 7 bankruptcy ${ }^{\text {(2) }} \quad \begin{array}{lllll}93 & 36 & 97 & 39\end{array}$
Total modifications
\$581 \$ 365 \$785 \$ 361
${ }^{(1)}$ Includes other modifications such as term or payment extensions and repayment plans.
${ }^{(2)}$ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.

[^23]The table below presents the carrying value of consumer real estate loans that entered into payment default during the three and six months ended June 30, 2017 and 2016 that were modified in a TDR during the 12 months preceding payment default. A payment default for consumer real estate TDRs is recognized when a borrower has missed three monthly payments (not necessarily consecutively) since modification.

Consumer Real Estate - TDRs Entering Payment Default That Were Modified During the Preceding 12 Months

|  | Three Months Ended June 30 |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 2017 |  | 2016 |  |
| (Dollars in millions) | Resi | dehtiab |  | dthoial |
|  | Mortg Egpaity |  | Mort | Igarity |
| Modifications under government programs | \$19 | \$ 1 | \$85 | \$ 1 |
| Modifications under proprietary programs | 14 | 19 | 35 | 5 |
| Loans discharged in Chapter 7 bankruptcy ${ }^{(1)}$ | 12 | 3 | 31 | 6 |
| Trial modifications ${ }^{(2)}$ | 40 | 6 | 184 | 29 |
| Total modifications | \$85 | \$ 29 | \$335 | \$ 41 |


|  | Six Months |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  | 2017 | 2016 | Ended June 30 |  |
| Modifications under government programs | $\$ 44$ | $\$ 2$ | $\$ 178$ | $\$ 1$ |
| Modifications under proprietary programs | 30 | 37 | 78 | 27 |
| Loans discharged in Chapter 7 bankruptcy | (1) | 70 | 7 | 71 |
| 11 |  |  |  |  |
| Trial modifications ${ }^{(2)}$ | 235 | 23 | 421 | 66 |
| Total modifications | $\$ 379$ | $\$ 69$ | $\$ 748$ | $\$ 105$ |

${ }^{(1)}$ Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.
${ }^{(2)}$ Includes trial modification offers to which the customer did not respond.

## Credit Card and Other Consumer

Impaired loans within the Credit Card and Other Consumer portfolio segment consist entirely of loans that have been modified in TDRs. The Corporation seeks to assist customers that are experiencing financial difficulty by modifying loans while ensuring compliance with federal, local and international laws and guidelines. Credit card and other consumer loan modifications generally involve reducing the interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs. In substantially all cases, the customer's available line of credit is canceled. The Corporation makes loan modifications directly with borrowers for debt held only by the Corporation (internal programs). Additionally, the Corporation
makes loan modifications for borrowers working with third-party renegotiation agencies that provide solutions to customers' entire unsecured debt structures (external programs). The Corporation classifies other secured consumer loans that have been discharged in Chapter 7 bankruptcy as TDRs which are written down to collateral value and placed on nonaccrual status no later than the time of discharge. For more information on the regulatory guidance on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business. The following tables for the three and six months ended June 30, 2017 reflect the sale of the non-U.S. credit card portfolio.

The table below provides the unpaid principal balance, carrying value and related allowance at June 30, 2017 and December 31, 2016, and the average carrying value and interest income recognized for the three and six months ended June 30, 2017 and 2016 on TDRs within the Credit Card and Other Consumer portfolio segment.

Impaired Loans - Credit Card and Other Consumer
(Dollars in millions)
With no recorded allowance
Direct/Indirect consumer
With an allowance recorded
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer
Total
U.S. credit card

Non-U.S. credit card
Direct/Indirect consumer


| Three Months | Ended June 30 | Six Months Ended June 30 |
| :--- | :--- | :--- |
| 2017 | 2016 | $2017 \quad 2016$ |

With no recorded allowance
Direct/Indirect consumer $\$ 18$ \$ - $\$ 21$ \$ - $\$ 18$ \$- $\$ 21$ \$ -
With an allowance recorded
$\begin{array}{lllllllll}\text { U.S. credit card } & \$ 463 & \$ & 6 & \$ 568 & \$ & 8 & \$ 470 & \$ 12\end{array} \$ 587 \$ 17$
Non-U.S. credit card 78 - $\quad 1161$
Direct/Indirect consumer
Total
U.S. credit card $\quad \$ 463$ \$ $6 \quad \$ 568 \$ 8 \quad \$ 470 \$ 12 \$ 587 \$ 17$
$\begin{array}{llllllllll}\text { Non-U.S. credit card } & 78 & - & 116 & 1 & 88 & 1 & 119 & 2\end{array}$
$\begin{array}{llllllllll}\text { Direct/Indirect consumer } & 20 & - & 32 & - & 21 & - & 36 & -\end{array}$
${ }^{(1)}$ Includes accrued interest and fees. Interest income recognized includes interest accrued and collected on the outstanding balances of accruing
${ }^{(2)}$ impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.
$\mathrm{n} / \mathrm{a}=$ not applicable.
The table below provides information on the Corporation's primary modification programs for the Credit Card and Other Consumer TDR portfolio at June 30, 2017 and December 31, 2016.

Credit Card and Other Consumer - TDRs by Program Type

| Internal | External | Other ${ }^{(1)}$ | Total | Percent of Balances <br> Programs |
| :--- | :--- | :--- | :--- | :--- |
|  | Programs |  |  | Current or Less |
|  |  |  | Than 30 Days Past |  |

Due
(Dollars in millions)

| U.S. credit card | $\$ 202$ | $\$ 220$ | $\$ 255$ | $\$$ | 264 | $\$ 1$ | $\$ 1$ |  | $\$ 458$ | $\$ 485$ | $89.26 \%$ | 88.99 | $\%$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Non-U.S. credit card | $\mathrm{n} / \mathrm{a}$ | 11 | $\mathrm{n} / \mathrm{a}$ | 7 |  | $\mathrm{n} / \mathrm{a}$ | 82 | $\mathrm{n} / \mathrm{a}$ | 100 | $\mathrm{n} / \mathrm{a}$ | 38.47 |  |  |
| Direct/Indirect consumer 1 | 2 | 1 | 1 |  | 18 | 22 | 20 | 25 | 92.99 | 90.49 |  |  |  |

(1) Other TDRs for non-U.S. credit card included modifications of accounts that are ineligible for a fixed payment plan.
$\mathrm{n} / \mathrm{a}=$ not applicable.

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The table below provides information on the Corporation's Credit Card and Other Consumer TDR portfolio including the June 30, 2017 and 2016 unpaid principal balance, carrying value, and average pre- and post-modification interest rates of loans that were modified in TDRs during three and six months ended June 30, 2017 and 2016, and net charge-offs recorded during the period in which the modification occurred.

Credit Card and Other Consumer - TDRs Entered into During the Three Months Ended June 30, 2017 and 2016

| June 30, 2017 |  |  |  |  |  |  | Three <br> Months <br> Ended <br> June 30, <br> 2017 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (Dollars in millions) | Unpa <br> Princ <br> Bala |  | Pre-Mo |  | Post- |  |  | arge-offs |
| U.S. credit card | \$52 | \$ 57 | 18.31 | \% | 5.30 | \% |  | 4 |
| Non-U.S. credit card | - | - | n/a |  | n/a |  | 6 |  |
| Direct/Indirect consumer |  | 4 | 4.14 |  | 4.08 |  |  |  |
| Total | \$59 | \$ 61 | 17.31 |  | 5.21 |  |  | 13 |
|  | June | 30, 2016 |  |  |  |  |  | $\begin{aligned} & \text { ree } \\ & \text { nths } \\ & \text { ded } \\ & \text { ee } 30, \\ & 16 \end{aligned}$ |
| U.S. credit card | \$44 | \$ 47 | 17.57 | \% | 5.41 | \% | \$ | 3 |
| Non-U.S. credit card |  | 36 | 24.01 |  | 0.35 |  | 7 |  |
| Direct/Indirect consumer |  | 4 | 4.52 |  | 4.34 |  | 3 |  |
| Total | \$81 | \$ 87 | 19.54 |  | 3.30 |  |  | 13 |

Credit Card and Other Consumer - TDRs Entered into During the Six Months Ended June 30, 2017 and 2016

|  |  |  |  |  |  | Six Months <br> Ended June |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | June 30, 2017 |  |  |  |  |  |

${ }^{(1)}$ Includes accrued interest and fees.
$\mathrm{n} / \mathrm{a}=$ not applicable
Credit card and other consumer loans are deemed to be in payment default during the quarter in which a borrower misses the second of two consecutive payments. Payment defaults are one of the factors considered when projecting future cash flows in the calculation of the allowance for loan and lease losses for impaired credit card and other consumer loans. Based on historical experience, the Corporation estimates that 12 percent of new U.S. credit card TDRs and 13 percent of new direct/indirect consumer TDRs may be in payment default within 12 months after modification. Loans that entered into payment default during the three and six months ended June 30, 2017 that had been modified in a TDR during the preceding 12 months were $\$ 5$ million and $\$ 12$ million for U.S. credit card and $\$ 1$ million and $\$ 2$ million for direct/indirect consumer. During the three and six months ended June 30, 2016, loans that entered into payment default that had been modified in a TDR during the preceding 12 months were $\$ 7$ million
and $\$ 16$ million for U.S. credit card, $\$ 30$ million and $\$ 64$ million for non-U.S. credit card, and $\$ 1$ million and $\$ 2$ million for direct/indirect consumer.
Commercial Loans
Impaired commercial loans include nonperforming loans and TDRs (both performing and nonperforming). For more information on impaired commercial loans, see Note 4 - Outstanding Loans and Leases to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
At June 30, 2017 and December 31, 2016, remaining commitments to lend additional funds to debtors whose terms have been modified in a commercial loan TDR were $\$ 455$ million and $\$ 461$ million.
Commercial foreclosed properties totaled $\$ 40$ million and $\$ 14$ million at June 30, 2017 and December 31, 2016.

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The table below provides the unpaid principal balance, carrying value and related allowance at June 30, 2017 and December 31, 2016, and the average carrying value and interest income recognized for the three and six months ended June 30, 2017 and 2016 for impaired loans in the Corporation's Commercial loan portfolio segment. Certain impaired commercial loans do not have a related allowance as the valuation of these impaired loans exceeded the carrying value, which is net of previously recorded charge-offs.

Impaired Loans - Commercial
(Dollars in millions)
With no recorded allowance
U.S. commercial

Commercial real estate
Non-U.S. commercial
With an allowance recorded
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial ${ }^{(1)}$

Total
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial ${ }^{(1)}$

June 30, $2017 \quad$ December 31, 2016
$\begin{array}{ll}\text { Unpaid Carrying } & \text { Related Pnpaid Parringa, Carryingelated } \\ \text { Principa_ Value } & \text { Allowancealance } \\ \text { Balance Allowance }\end{array}$

| $\$ 785$ | $\$ 777$ | $\$-$ | $\$ 860$ | $\$ 827$ | $\$-$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 53 | 47 | - | 77 | 71 | - |
| - | - | - | 130 | 130 | - |

\$1,550 \$ 1,215 \$103 \$2,018 \$1,569 \$ 132
$\begin{array}{llllll}239 & 115 & 13 & 243 & 96 & 10\end{array}$

| 9 | 7 | 1 | 6 | 4 | - |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 557 | 476 | 96 | 545 | 432 | 104 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 88 | 75 | 29 | 85 | 73 | 27 |
| :--- | :--- | :--- | :--- | :--- | :--- |

\$2,335 \$ 1,992 \$103 \$2,878 \$2,396 \$ 132
$\begin{array}{llllll}292 & 162 & 13 & 320 & 167 & 10\end{array}$

| 9 | 7 | 1 | 6 | 4 | - |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 557 | 476 | 96 | 675 | 562 | 104 |
| :--- | :--- | :--- | :--- | :--- | :--- |


| 88 | 75 | 29 | 85 | 73 | 27 |
| :--- | :--- | :--- | :--- | :--- | :--- |



With no recorded allowance
U.S. commercial
Commercial real estate

| $\$ 857$ | $\$$ | 3 | $\$ 656$ | $\$ 3$ |
| :--- | :--- | :--- | :--- | :--- |
| 48 | - | 65 | - |  |
| 43 | - | 17 | - |  |

Non-U.S. commercial
With an allowance recorded
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial
U.S. small business commercial ${ }^{(1)} 77$ -

|  |  |
| :--- | :--- |
| $\$ 1,646$ | $\$ 16$ |
| 96 | 1 |
| 1 | - |
| 349 | 3 |
| 92 | - |


| $\$ 870$ | $\$ 6$ | $\$ 619$ | $\$ 5$ |
| :--- | :--- | :--- | :--- |
| 54 | - | 71 | - |
| 75 | - | 11 | - |

Total
U.S. commercial

Commercial real estate
Commercial lease financing
Non-U.S. commercial

| $\$ 2,121$ | $\$$ | 10 |  | $\$ 2,302$ | $\$ 19$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 154 | 1 |  | 161 | 1 |  |
| 4 | - |  | 1 | - |  |
| 525 | 3 |  | 366 | 3 |  |


| $\$ 2,246$ | $\$ 22$ | $\$ 2,163$ | $\$$ | 35 |
| :--- | :--- | :--- | :--- | :--- |
| 145 | 2 | 171 | 2 |  |
| 4 | - | 1 | - |  |
| 544 | 6 |  | 370 | 6 |

U.S. small business commercial ${ }^{(1)} 77 \quad$ - $92 \quad$ - $\quad 75 \quad$ - 97 -
${ }^{(1)}$ Includes U.S. small business commercial renegotiated TDR loans and related allowance. Interest income recognized includes interest accrued and collected on the outstanding balances of accruing
${ }^{(2)}$ impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

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The table below presents the June 30, 2017 and 2016 unpaid principal balance and carrying value of commercial loans that were modified as TDRs during the three and six months ended June 30, 2017 and 2016, and net charge-offs that were recorded during the period in which the modification occurred. The table below includes loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Commercial - TDRs Entered into During the Three Months Ended June 30, 2017 and 2016

|  |  |  | Three <br> Months |
| :--- | :--- | :--- | :--- |
|  | June 30, 2017 | Ended <br> June 30, |  |
|  |  |  | 2017 |

Commercial - TDRs Entered into During the Six Months Ended June 30, 2017 and 2016

|  | June 30, 2017 | Six Months <br> Ended June <br> $30, ~ 2017 ~$ |
| :--- | :--- | :--- | :--- |

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|  | $\$ 1,341$ | $\$ 1,299$ | $\$$ | 29 |
| :--- | :--- | :--- | :--- | :--- |
| U.S. commercial | 22 | 22 | 1 |  |
| Commercial real estate | 5 | 2 | 2 |  |
| Commercial lease financing | 287 | 207 | 48 |  |
| Non-U.S. commercial | $\$ 1,658$ | $\$ 1,533$ | $\$$ | 80 |

${ }^{(1)}$ U.S. small business commercial TDRs are comprised of renegotiated small business card loans.
A commercial TDR is generally deemed to be in payment default when the loan is 90 days or more past due, including delinquencies that were not resolved as part of the modification. U.S. small business commercial TDRs are deemed to be in payment default
during the quarter in which a borrower misses the second of two consecutive payments. Payment defaults are one of the factors considered when projecting future cash flows, along with observable market prices or fair value of collateral when measuring the allowance for loan and lease losses. TDRs that were in payment default had a carrying value of $\$ 78$ million and $\$ 90$ million for U.S. commercial and $\$ 32$ million and $\$ 17$ million for commercial real estate at June 30, 2017 and 2016.
Purchased Credit-impaired Loans
The table below shows activity for the accretable yield on PCI loans, which include the Countrywide Financial Corporation (Countrywide) portfolio and loans repurchased in connection with the 2013 settlement with FNMA. The amount of accretable yield is affected by changes in credit outlooks, including metrics such as default rates and loss severities, prepayment speeds, which can change the amount and period of time over which interest payments are expected to be received, and the interest rates on variable rate loans. The reclassifications from nonaccretable difference in the three and six months ended June 30, 2017 were primarily due to an increase in the expected principal and interest cash flows due to lower default estimates.

Rollforward of Accretable Yield
$\left.\begin{array}{lll} & \begin{array}{l}\text { Three } \\ \\ \text { Months }\end{array} & \text { Six } \\ \text { Months } \\ \text { (Dollars in millions) } & \text { Ended } & \text { Ended } \\ & \text { June 30, } & \text { June 30, } \\ & 2017 & 2017 \\ \text { Accretable yield, beginning of period } & \$ 3,550 & \$ 3,805 \\ \text { Accretion } & (155 & ) \\ \text { Disposals/transfers } & (148 & ) \\ \text { Reclassifications from nonaccretable difference } & 41 & 40\end{array}\right)$

Accretable yield, June 30, $2017 \quad \$ 3,288 \quad \$ 3,288$
During the three and six months ended June 30, 2017, the Corporation sold PCI loans with a carrying value of $\$ 189$ million, which excludes the related allowance of $\$ 15$ million. During the three and six months ended June 30, 2016, the Corporation sold PCI loans with a carrying value of $\$ 150$ million and $\$ 324$ million, which excludes the related allowance of $\$ 19$ million and $\$ 39$ million. For more information on PCI loans, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form $10-\mathrm{K}$, and for the carrying value and valuation allowance for PCI loans, see Note 5 - Allowance for Credit Losses. Loans Held-for-sale
The Corporation had LHFS of $\$ 5.9$ billion and $\$ 9.1$ billion at June 30, 2017 and December 31, 2016. Cash and non-cash proceeds from sales and paydowns of loans originally classified as LHFS were $\$ 21.1$ billion and $\$ 12.8$ billion for the six months ended June 30, 2017 and 2016. Cash used for originations and purchases of LHFS totaled $\$ 18.1$ billion and $\$ 13.4$ billion for the six months ended June 30, 2017 and 2016.

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NOTE 5 Allowance for Credit Losses
The table below summarizes the changes in the allowance for credit losses by portfolio segment for the three and six months ended June 30, 2017 and 2016.

| (Dollars in millions) | Three Months Ended June 30, 2017 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Consum <br> Real <br> Estate | Credit ${ }^{\text {me }}$ Card and Other Consumer | Commer |  | Total <br> Allowance |
| Allowance for loan and lease losses, April 1 | \$2,565 | \$ 3,329 | \$ 5,218 |  | \$ 11,112 |
| Loans and leases charged off | (198 | ) (954 | (198 | ) | (1,350 |
| Recoveries of loans and leases previously charged off | 167 | 234 | 41 |  | 442 |
| Net charge-offs | (31 | ) (720 | (157 | ) | (908 |
| Write-offs of PCI loans | (55 | ) - | - |  | (55 |
| Provision for loan and lease losses | (170 | ) 776 | 120 |  | 726 |
| Other ${ }^{(1)}$ | - | 1 | (1 | ) | - |
| Allowance for loan and lease losses, June 30 | 2,309 | 3,386 | 5,180 |  | 10,875 |
| Reserve for unfunded lending commitments, April 1 | - | - | 757 |  | 757 |
| Provision for unfunded lending commitments | - | - | - |  | - |
| Reserve for unfunded lending commitments, June 30 | - | - | 757 |  | 757 |

Three Months Ended June 30, 2016
Allowance for loan and lease losses, April 1
Loans and leases charged off (304 ) (884 ) (190 ) (1,378 )
Recoveries of loans and leases previously charged off $144 \quad 195 \quad 54 \quad 393$
Net charge-offs (160 ) (689 ) (136 ) (985 )
Write-offs of PCI loans
(82 ) - - (82 )
Provision for loan and lease losses (5 ) 738 219952
Other ${ }^{(1)} \quad-\quad(17 \quad)(100)(117 \quad)$
Allowance for loan and lease losses, June $30 \quad 3,209 \quad 3,334 \quad 5,294 \quad 11,837$
Reserve for unfunded lending commitments, April 1 - $\quad$ - 627627
Provision for unfunded lending commitments - $\quad$ - 24
Other ${ }^{(1)}$ - $\quad$ - $99 \quad 99$
Reserve for unfunded lending commitments, June 30 - $\quad$ - $750 \quad 750$
$\begin{array}{llll}\text { Allowance for credit losses, June } 30 & \$ 3,209 & \$ 3,334 & \$ 6,044\end{array} \$ 12,587$
Six Months Ended June 30, 2017
Allowance for loan and lease losses, January $1 \quad \$ 2,750 \quad \$ 3,229 \quad \$ 5,258 \quad \$ 11,237$
Loans and leases charged off
(402 ) (1,900) (358 ) (2,660 )
Recoveries of loans and leases previously charged off
Net charge-offs ${ }^{(2)}$
Write-offs of PCI loans
Provision for loan and lease losses
29043494818
(112 ) (1,466) (264 ) (1,842 )

Other ${ }^{(1)}$
(88 ) - - (88 )
Other ${ }^{(1)}$
(241 ) 1,619 $188 \quad 1,566$
$\begin{array}{llllll}\text { Allowance for loan and lease losses, June } 30 & 2,309 & 3,386 & 5,180 & 10,875\end{array}$
Reserve for unfunded lending commitments, January 1 - - 762762
Provision for unfunded lending commitments - $\quad$ - $\quad$ (5 ) (5 )
Reserve for unfunded lending commitments, June 30 - $\quad$ - 757
Allowance for credit losses, June 30
Allowance for loan and lease losses, January 1
$\left.\begin{array}{lllllll}\text { Loans and leases charged off } & (682 & )(1,796 & (396 & )(2,874 & ) \\ \text { Recoveries of loans and leases previously charged off } & 319 & 393 & 109 & 821 & \\ \text { Net charge-offs } & (363 & ) & (1,403 & )(287 & )(2,053 & ) \\ \text { Write-offs of PCI loans } & (187 & ) & - & - & (187 & ) \\ \text { Provision for loan and lease losses } & (155 & ) & 1,290 & 833 & 1,968 & \\ \text { Other }{ }^{(1)} & - & (24 & )(101 & )(125\end{array}\right)$
${ }_{\text {(1) }}$ Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.
(2) Includes net charge-offs of non-U.S. credit card loans, which were previously included in assets of business held for sale. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business. During the three and six months ended June 30, 2017, for the PCI loan portfolio, the Corporation recorded a provision benefit of $\$ 24$ million and an expense of $\$ 44$ million compared to a provision benefit of $\$ 12$ million and $\$ 89$ million for the same periods in 2016. Write-offs in the PCI loan portfolio totaled $\$ 55$ million and
$\$ 88$ million during the three and six months ended June 30,2017 compared to $\$ 82$ million and $\$ 187$ million for the same periods in 2016. Write-offs included $\$ 15$ million associated with the sale of PCI loans during the three and six months ended June 30, 2017 compared to $\$ 19$ million and $\$ 39$ million for the same periods in

[^24]2016. The valuation allowance associated with the PCI loan portfolio was $\$ 375$ million and $\$ 419$ million at June 30, 2017 and December 31, 2016.

The table below presents the allowance and the carrying value of outstanding loans and leases by portfolio segment at June 30, 2017 and December 31, 2016.

Allowance and Carrying Value by Portfolio Segment
(Dollars in millions)

Impaired loans and troubled debt restructurings ${ }^{(1)}$
Allowance for loan and lease losses (2)
Carrying value ${ }^{(3)}$
Allowance as a percentage of carrying value
Loans collectively evaluated for impairment
Allowance for loan and lease losses
Carrying value ${ }^{(3,4)}$
Allowance as a percentage of carrying value ${ }^{(4)}$
Purchased credit-impaired loans
Valuation allowance
Carrying value gross of valuation allowance
Valuation allowance as a percentage of carrying value
Total
Total allowance for loan and lease losses $\quad \$ 2,309 \quad \$ 3,386 \quad \$ 5,180 \quad \$ 10,875$
Carrying value ${ }^{(3,4)}$
Total allowance as a percentage of carrying value (4)
June 30, 2017
$\begin{array}{lll}\text { Consumer } & \text { Credit } & \\ \text { Real } & \text { Card and } & \\ \text { Estate } & \text { Other } & \\ & \text { Comensumer } & \end{array}$

| $\$ 381$ | $\$ 131$ |  | $\$ 242$ |  | $\$ 754$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 13,993 | 478 |  | 2,712 |  | 17,183 |  |  |
| 2.72 | $\%$ | 27.41 | $\%$ | 8.92 | $\%$ | 4.39 | $\%$ |
|  |  |  |  |  |  |  |  |
| $\$ 1,553$ $\$ 3,255$  $\$ 4,938$  $\$ 9,746$   <br> 232,951 186,449 460,314  879,714    <br> 0.67 $\%$ 1.75 $\%$ 1.07 $\%$ 1.11 $\%$$l$ |  |  |  |  |  |  |  |

Impaired loans and troubled debt restructurings ${ }^{(1)}$
Allowance for loan and lease losses ${ }^{(2)}$
Carrying value ${ }^{(3)}$
Allowance as a percentage of carrying value
Loans collectively evaluated for impairment
Allowance for loan and lease losses

| 259,388 | 186,927 |  | 463,026 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 0.89 | $\%$ | 1.81 | $\%$ | 1.12 | $\%$ | 1.20 | $\%$ |

December 31, 2016

Carrying value ${ }^{(3,4)}$
Allowance as a percentage of carrying value ${ }^{(4)}$
Purchased credit-impaired loans
Valuation allowance

| $\$ 356$ | $\$ 189$ |  | $\$ 273$ | $\$ 818$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 15,408 | 610 | 3,202 |  | 19,220 |  |  |
| 2.31 | $\%$ | 30.98 | $\%$ | 8.53 | $\%$ | 4.26 |

Carrying value gross of valuation allowance
Valuation allowance as a percentage of carrying value
Less: Assets of business held for sale (5)
Allowance for loan and lease losses (6)
Carrying value ${ }^{(3)}$
Total
Allowance for loan and lease losses
Carrying value ${ }^{(3,4)}$
Allowance as a percentage of carrying value (4) (1)

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Impaired loans include nonperforming commercial loans and all TDRs, including both commercial and consumer TDRs. Impaired loans exclude nonperforming consumer loans unless they are TDRs, and all consumer and commercial loans accounted for under the fair value option.
(2) Allowance for loan and lease losses includes $\$ 29$ million and $\$ 27$ million related to impaired U.S. small business commercial at June 30, 2017 and December 31, 2016.
${ }^{(3)}$ Amounts are presented gross of the allowance for loan and lease losses.
(4) Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option of $\$ 7.3$ billion and $\$ 7.1$ billion at June 30, 2017 and December 31, 2016.
Represents allowance for loan and lease losses and loans related to the non-U.S. credit card loan portfolio, which
${ }^{(5)}$ was included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business.
(6) Includes $\$ 61$ million of allowance for loan and lease losses related to impaired loans and TDRs and $\$ 182$ million related to loans collectively evaluated for impairment at December 31, 2016.
$\mathrm{n} / \mathrm{a}=$ not applicable

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NOTE 6 Securitizations and Other Variable Interest Entities
The Corporation utilizes VIEs in the ordinary course of business to support its own and its customers' financing and investing needs. For more information on the Corporation's use of VIEs, see Note 1 - Summary of Significant Accounting Principles and Note 6 - Securitizations and Other Variable Interest Entities to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
The tables in this Note present the assets and liabilities of consolidated and unconsolidated VIEs at June 30, 2017 and December 31, 2016, in situations where the Corporation has continuing involvement with transferred assets or if the Corporation otherwise has a variable interest in the VIE. The tables also present the Corporation's maximum loss exposure at June 30, 2017 and December 31, 2016 resulting from its involvement with consolidated VIEs and unconsolidated VIEs in which the Corporation holds a variable interest. The Corporation's maximum loss exposure is based on the unlikely event that all of the assets in the VIEs become worthless and incorporates not only potential losses associated with assets recorded on the Consolidated Balance Sheet but also potential losses associated with off-balance sheet commitments, such as unfunded liquidity commitments and other contractual arrangements. The Corporation's maximum loss exposure does not include losses previously recognized through write-downs of assets. The Corporation invests in ABS issued by third-party VIEs with which it has no other form of involvement and enters into certain commercial lending arrangements that may also incorporate the use of VIEs, for example to hold collateral. These securities and
loans are included in Note 3 - Securities or Note 4 - Outstanding Loans and Leases. In addition, the Corporation uses VIEs such as trust preferred securities trusts in connection with its funding activities. For additional information, see Note 11 - Long-term Debt to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. The Corporation uses VIEs, such as common trust funds managed within Global Wealth \& Investment Management (GWIM), to provide investment opportunities for clients. These VIEs, which are generally not consolidated by the Corporation, as applicable, are not included in the tables herein.
Except as described below, the Corporation did not provide financial support to consolidated or unconsolidated VIEs during the six months ended June 30, 2017 or the year ended December 31, 2016 that it was not previously contractually required to provide, nor does it intend to do so.
First-lien Mortgage Securitizations
First-lien Mortgages
As part of its mortgage banking activities, the Corporation securitizes a portion of the first-lien residential mortgage loans it originates or purchases from third parties. Except as described below and in Note 7 - Representations and Warranties Obligations and Corporate Guarantees, the Corporation does not provide guarantees or recourse to the securitization trusts other than standard representations and warranties.
The table below summarizes select information related to first-lien mortgage securitizations for the three and six months ended June 30, 2017 and 2016.

## First-lien Mortgage Securitizations

|  | Residential Mortgage Agency |  | Commercial Mortgage |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Three Months <br> Ended June <br> 30 | Six Months <br> Ended June 30 | Three <br> Months <br> Ended June <br> 30 |  | onths <br> June 30 |
| (Dollars in millions) | 20172016 | 20172016 | 20172016 | 2017 | 2016 |
| Cash proceeds from new securitizations ${ }^{(1)}$ | \$3,302 \$4,375 | \$7,958\$11,449 | \$1,097\$732 | \$1,70 | 6 1,979 |
| Gain (loss) on securitizations ${ }^{(2)}$ | 6170 | 100233 | $35 \quad(6$ | ) 53 | (9 |
| Repurchases from securitization trusts ${ }^{(3)}$ | 602645 | 1,474 1,374 | - - | - | - |

The Corporation transfers residential mortgage loans to securitizations sponsored by the GSEs or Government National Mortgage Association (GNMA) in the normal course of business and receives RMBS in exchange which may then be sold into the market to third-party investors for cash proceeds.
A majority of the first-lien residential and commercial mortgage loans securitized are initially classified as LHFS
and accounted for under the fair value option. Gains recognized on these LHFS prior to securitization, which totaled $\$ 42$ million and $\$ 132$ million, net of hedges, during the three and six months ended June 30, 2017 compared to $\$ 92$ million and $\$ 200$ million for the same periods in 2016, are not included in the table above. The Corporation may have the option to repurchase delinquent loans out of securitization trusts, which reduces the amount of servicing advances it is required to make. The Corporation may also repurchase loans from securitization trusts to perform modifications. Repurchased loans include FHA-insured mortgages collateralizing GNMA securities.
In addition to cash proceeds as reported in the table above, the Corporation received securities with an initial fair value of $\$ 288$ million and $\$ 563$ million in connection with first-lien mortgage securitizations for the three and six months ended June 30, 2017 compared to $\$ 1.0$ billion and $\$ 1.9$ billion for the same periods in 2016. The receipt of these securities represents non-cash operating and investing activities and, accordingly, is not reflected on the Consolidated Statement of Cash Flows. Substantially all of these securities were initially classified as Level 2 assets within the fair value hierarchy. During the three and six months ended June 30, 2017 and 2016, there were no changes to the initial classification.
The Corporation recognizes consumer MSRs from the sale or securitization of consumer real estate loans. The unpaid principal balance of loans serviced for investors, including residential mortgage and home equity loans, totaled $\$ 304.9$ billion and $\$ 371.0$ billion at June 30, 2017 and 2016. Servicing fee and ancillary fee income on serviced loans was $\$ 233$ million and $\$ 478$
million during the three and six months ended June 30, 2017 compared to $\$ 299$ million and $\$ 601$ million for the same periods in 2016. Servicing advances on serviced loans, including loans serviced for others and loans held for investment were $\$ 5.4$ billion and $\$ 6.2$ billion at June 30, 2017 and December 31, 2016. For more information on MSRs, see Note 14 - Fair Value Measurements.
During the six months ended June 30, 2016, the Corporation deconsolidated agency residential mortgage securitization vehicles with total assets of $\$ 2.8$ billion following the sale of retained interests to third parties, after which the Corporation no longer had the unilateral ability to liquidate the vehicles. Gains on sale of $\$ 114$ million related to the deconsolidations were recorded in other income in the Consolidated Statement of Income.
The following table summarizes select information related to first-lien mortgage securitization trusts in which the Corporation held a variable interest at June 30, 2017 and December 31, 2016.

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First-lien Mortgage VIEs
Residential Mortgage
Non-agency

| Agency Prime | Subprime | Alt-A | Commercial <br> Mortgage |
| :--- | :--- | :--- | :--- |

(Dollars in June 30 December 3Jlune 30 December Bune 30 December Bune 30 December Bune 30 December 31 millions) $22017 \quad 2016 \quad 2017 \quad 2016 \quad 2017 \quad 2016 \quad 2017 \quad 2016 \quad 2017 \quad 2016$
Unconsolidated
VIEs
Maximum loss exposure ${ }^{(1)}$
On-balance sheet
assets
Senior securities
held (2):
Trading account assets
Debt securities carried at fair value
Held-to-maturity securities

| $\$ 463$ | $\$ 1,399$ | $\$ 13$ | $\$ 20$ | $\$ 6$ | $\$ 112$ | $\$ 78$ | $\$ 118$ | $\$ 64$ | $\$ 51$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Subordinate securities held ${ }^{(2)}$ :

| Trading account | - | - | 1 | 1 | 15 | 23 | 1 | 1 | 22 | 14 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| assets |  |  |  |  |  |  |  |  |  |  |
| Debt securities <br> carried at fair value | - | 6 | 8 | 2 | 2 | 21 | 23 | 48 | 54 |  |


| Held-to-maturity <br> securities | - | - | - | - | - | - | - | - | - | 13 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



| held |  | - | - | - | - | - | - | 24 | 25 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| All other assets ${ }^{(3)}$ | 11 | 12 | 24 | 28 | - | - | 97 | 113 | - |


| Total retained | $\$ 20,056$ | $\$ 22,661$ | $\$ 429$ | $\$ 498$ | $\$ 2,218$ | $\$ 2,372$ | $\$ 504$ | $\$ 560$ | $\$ 251$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |$\$ 221$

Principal balance
outstanding ${ }^{(4)}$
$\$ 249,610 \$ 265,332 \quad \$ 11,678 \$ 16,280 \quad \$ 17,853 \$ 19,373 \quad \$ 31,141 \$ 35,788 \quad \$ 18,393 \$ 23,826$

Consolidated VIEs
$\begin{array}{lllllllll}\begin{array}{l}\text { Maximum loss } \\ \text { exposure }\end{array} & \$ 16,009 & \$ 18,084 & \$- & \$- & \$- & \$- & \$- & \$ 25\end{array} \$-\quad \$-$
On-balance sheet assets
Trading account assets
Loans and leases
\$137 \$434 \$- \$-

All other assets
Total assets
15,581 17,223


On-balance sheet
liabilities

| Long-term debt | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$ 74$ | $\$-$ | $\$-$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| All other liabilities | 2 | 4 | - | - | - | - | - | - | - | - |
| Total liabilities | $\$ 2$ | $\$ 4$ | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$-$ | $\$ 74$ | $\$-$ | $\$-$ | Maximum loss exposure includes obligations under loss-sharing reinsurance and other arrangements for non-agency residential mortgage and commercial mortgage securitizations, but excludes the liability for

${ }^{(1)}$ representations and warranties obligations and corporate guarantees and also excludes servicing advances and other servicing rights and obligations. For additional information, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees and Note 14 - Fair Value Measurements. As a holder of these securities, the Corporation receives scheduled principal and interest payments. During the three and six months ended June 30 , 2017, the Corporation recognized $\$ 1$ million and $\$ 16$ million compared to $\$ 2$
${ }^{(2)}$ million and $\$ 4$ million for the same periods in 2016 of credit-related impairment losses in earnings on those securities classified as AFS debt securities. During the three and six months ended June 30, 2017 and 2016, the Corporation recognized no credit-related impairment losses in earnings on those securities classified as HTM. Not included in the table above are all other assets of $\$ 136$ million and $\$ 189$ million, representing the unpaid principal balance of mortgage loans eligible for repurchase from unconsolidated residential mortgage securitization
${ }^{(3)}$ vehicles, principally guaranteed by GNMA, and all other liabilities of $\$ 136$ million and $\$ 189$ million, representing the principal amount that would be payable to the securitization vehicles if the Corporation was to exercise the repurchase option, at June 30, 2017 and December 31, 2016.
(4) Principal balance outstanding includes loans where the Corporation was the transferor to securitization vehicles with which it has continuing involvement, which may include servicing the loans.

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Other Asset-backed Securitizations
The table below summarizes select information related to home equity loan, credit card and other asset-backed VIEs in which the Corporation held a variable interest at June 30, 2017 and December 31, 2016.

Home Equity Loan, Credit Card and Other Asset-backed VIEs

| (Dollars in millions) | Home Equity Loan (1) |  | Credit Card ${ }^{(2,3)}$ |  | Resecuritization Trusts |  | Municipal Bond Trusts |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | June 30 | 0 December 3 | 31June 30 | December 3 | 31 June 30 | December | 31Jun | ODecembe |
|  | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 | 2017 | 2016 |
| Unconsolidated VIEs |  |  |  |  |  |  |  |  |
| Maximum loss exposure | \$2,283 | \$ 2,732 | \$- | \$- | \$9,561 | \$ 9,906 | \$ 1,6 | 7\$ 1,635 |
| On-balance sheet assets |  |  |  |  |  |  |  |  |
| Senior securities held ${ }^{(4,5)}$ : |  |  |  |  |  |  |  |  |
| Trading account assets | \$- | \$ | \$- | \$- | \$ 1,312 | \$ 902 | \$9 | \$ |
| Debt securities carried at fair value | 41 | 46 | - | - | 2,036 | 2,338 | - | - |
| Held-to-maturity securities |  | - | - | - | 6,115 | 6,569 | - | - |
| Subordinate securities held ${ }^{(4,5)}$ : |  |  |  |  |  |  |  |  |
| Trading account assets |  |  | - |  | 26 | 27 | - |  |
| Debt securities carried at fair value |  |  |  |  | 72 | 70 | - |  |
| Total retained positions | \$41 | \$ 46 | \$- | \$ - | \$9,561 | \$ 9,906 | \$9 | \$ |
| Total assets of VIEs ${ }^{(6)}$ | \$3,142 | \$ 4,274 | \$- | \$- | \$ 19,645 | 5\$ 22,155 | \$2,34 | \$ 2,406 |
| Consolidated VIEs |  |  |  |  |  |  |  |  |
| Maximum loss exposure | \$128 | \$ 149 | \$23,557 | \$ 25,859 | \$256 | \$ 420 | \$1,21 | \$ 1,442 |
| On-balance sheet assets |  |  |  |  |  |  |  |  |
| Trading account assets | \$- | \$ - | \$- | \$- | \$723 | \$ 1,428 | \$1,21 | 3\$ 1,454 |
| Loans and leases | 208 | 244 | 32,873 | 35,135 | - | - | - |  |
| Allowance for loan and lease losses | (14 | )(16 | (982 | )(1,007 | - | - | - | - |
| All other assets |  |  | 687 |  | - | - |  |  |
| Total assets | \$200 | \$ 235 | \$32,578 | \$ 34,921 | \$723 | \$ 1,428 | \$1,21 | 4\$ 1,454 |
| On-balance sheet liabilities |  |  |  |  |  |  |  |  |
| Short-term borrowings | \$- | \$ - | \$- | \$- | \$- | \$ - | \$97 | \$ 348 |
| Long-term debt | 90 | 108 | 8,998 | 9,049 | 467 | 1,008 | - | 12 |
| All other liabilities | - | - | 23 | 13 | - | - | 4 |  |
| Total liabilities | \$90 | \$ 108 | \$9,021 | \$ 9,062 | \$467 | \$ 1,008 | \$101 | \$ 360 |
| For unconsolidated home equity loan VIEs, the maximum loss exposure includes outstanding trust certificates issued by trusts in rapid amortization, net of recorded reserves. For both consolidated and unconsolidated home |  |  |  |  |  |  |  |  |
| ${ }^{(1)}$ equity loan VIEs, the maximum loss exposure excludes the liability for representations and warranties obligations and corporate guarantees. For additional information, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees. |  |  |  |  |  |  |  |  |
| (2) At June 30, 2017 and December 31, 2016, loans and leases in the consolidated credit card trust included $\$ 15.4$ billion and $\$ 17.6$ billion of seller's interest. |  |  |  |  |  |  |  |  |
| (3) At June 30, 2017 and December 31, 2016, all other assets in the consolidated credit card trust included restricted cash, certain short-term investments, and unbilled accrued interest and fees. |  |  |  |  |  |  |  |  |
| ${ }^{(4)}$ As a holder of these securities, the Corporation receives scheduled principal and interest payments. During the three and six months ended June 30, 2017, the Corporation recognized $\$ 0$ and $\$ 2$ million compared to $\$ 1$ million |  |  |  |  |  |  |  |  |

and $\$ 2$ million for the same periods in 2016 of credit-related impairment losses in earnings on securities classified as AFS debt securities. During the three and six months ended June 30, 2017 and 2016, the Corporation recognized no credit-related impairment losses in earnings on securities classified as HTM.
(5) The retained senior and subordinate securities were valued using quoted market prices or observable market inputs (Level 2 of the fair value hierarchy).
(6) Total assets include loans the Corporation transferred with which it has continuing involvement, which may include servicing the loan.

## Home Equity Loans

The Corporation retains interests in home equity securitization trusts to which it transferred home equity loans. These retained interests include senior and subordinate securities and residual interests. In addition, the Corporation may be obligated to provide subordinate funding to the trusts during a rapid amortization event. This obligation is included in the maximum loss exposure in the table above. The charges that will ultimately be recorded as a result of the rapid amortization events depend on the undrawn available credit on the home equity lines, performance of the loans, the amount of subsequent draws and the timing of related cash flows.

## Credit Card Securitizations

The Corporation securitizes originated and purchased credit card loans. The Corporation's continuing involvement with the securitization trust includes servicing the receivables, retaining an undivided interest (seller's interest) in the receivables, and holding certain retained interests including senior and subordinate securities, subordinate interests in accrued interest
and fees on the securitized receivables, and cash reserve accounts.
For the six months ended June 30, 2017 and 2016, $\$ 2.0$ billion and $\$ 750$ million of new senior debt securities were issued to third-party investors from the credit card securitization trust.
At both June 30, 2017 and December 31, 2016, the Corporation held subordinate securities issued by the credit card securitization trust with a notional principal amount of $\$ 7.5$ billion. These securities serve as a form of credit enhancement to the senior debt securities and have a stated interest rate of zero percent. There were $\$ 323$ million of these subordinate securities issued during the six months ended June 30, 2017 compared to $\$ 121$ million for the same period in 2016.
Resecuritization Trusts
The Corporation transfers securities, typically MBS, into resecuritization vehicles at the request of customers seeking securities with specific characteristics. Generally, there are no significant ongoing activities performed in a resecuritization trust and no single investor has the unilateral ability to liquidate the trust.

[^25]The Corporation resecuritized $\$ 7.3$ billion and $\$ 15.1$ billion of securities during the three and six months ended June 30,2017 compared to $\$ 8.1$ billion and $\$ 14.7$ billion for the same periods in 2016. Securities transferred into resecuritization vehicles during the three and six months ended June 30, 2017 and 2016 were measured at fair value with changes in fair value recorded in trading account profits prior to the resecuritization and no gain or loss on sale was recorded. Resecuritization proceeds included securities with an initial fair value of $\$ 1.1$ billion and $\$ 1.8$ billion during the three and six months ended June 30, 2017 compared to $\$ 1.1$ billion and $\$ 2.2$ billion for the same periods in 2016. All of the securities received as resecuritization proceeds were classified as trading securities and were categorized as Level 2 within the fair value hierarchy.
Municipal Bond Trusts
The Corporation administers municipal bond trusts that hold highly-rated, long-term, fixed-rate municipal bonds. The trusts
obtain financing by issuing floating-rate trust certificates that reprice on a weekly or other short-term basis to third-party investors.
The Corporation's liquidity commitments to unconsolidated municipal bond trusts, including those for which the Corporation was transferor, totaled $\$ 1.6$ billion at both June 30, 2017 and December 31, 2016. The weighted-average remaining life of bonds held in the trusts at June 30, 2017 was 5.3 years. There were no material write-downs or downgrades of assets or issuers during the six months ended June 30, 2017 and 2016.
Other Variable Interest Entities
The table below summarizes select information related to other VIEs in which the Corporation held a variable interest at June 30, 2017 and December 31, 2016.

Other VIEs

| (Dollars in millions) | Consoliddindonsolidated |  |  | $\begin{aligned} & \text { Total } \\ & \$ 23,533 \end{aligned}$ | Consoliditienonsolidated |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Maximum loss exposure | \$5,428 | \$ 18,105 |  |  | \$6,114 | \$ 17,754 |  | \$23,868 |
| On-balance sheet assets |  |  |  |  |  |  |  |  |
| Trading account assets | \$2,470 | \$ 277 |  | \$2,747 | \$2,358 | \$ 233 |  | \$2,591 |
| Debt securities carried at fair value | - | 231 |  | 231 | - | 122 |  | 122 |
| Loans and leases | 2,942 | 3,746 |  | 6,688 | 3,399 | 3,249 |  | 6,648 |
| Allowance for loan and lease losses | (8 | ) (30 | ) | (38 | ) (9 | ) $(24$ | ) | (33 |
| Loans held-for-sale | 93 | 102 |  | 195 | 188 | 464 |  | 652 |
| All other assets | 151 | 13,410 |  | 13,561 | 369 | 13,156 |  | 13,525 |
| Total | \$5,648 | \$ 17,736 |  | \$23,384 | \$6,305 | \$ 17,200 |  | \$23,505 |
| On-balance sheet liabilities |  |  |  |  |  |  |  |  |
| Long-term debt ${ }^{(1)}$ | \$210 | \$ - |  | \$210 | \$395 | \$ - |  | \$395 |
| All other liabilities | 23 | 3,065 |  | 3,088 | 24 | 2,959 |  | 2,983 |
| Total | \$233 | \$ 3,065 |  | \$3,298 | \$419 | \$ 2,959 |  | \$3,378 |
| Total assets of VIEs | \$5,648 | \$ 66,088 |  | \$71,736 | \$6,305 | \$ 62,269 |  | \$68,574 |

(1) Includes $\$ 13$ million and $\$ 229$ million of long-term debt at June 30, 2017 and December 31, 2016 issued by other consolidated VIEs, which has recourse to the general credit of the Corporation.
Customer Vehicles
Customer vehicles include credit-linked, equity-linked and commodity-linked note vehicles, repackaging vehicles, and asset acquisition vehicles, which are typically created on behalf of customers who wish to obtain market or credit exposure to a specific company, index, commodity or financial instrument.
The Corporation's maximum loss exposure to consolidated and unconsolidated customer vehicles totaled $\$ 2.2$ billion and $\$ 2.9$ billion at June 30, 2017 and December 31, 2016, including the notional amount of derivatives to which the Corporation is a counterparty, net of losses previously recorded, and the Corporation's investment, if any, in securities issued by the vehicles. The Corporation also had liquidity commitments, including written put options and collateral
value guarantees, with certain unconsolidated vehicles of $\$ 41$ million and $\$ 323$ million at June 30, 2017 and December 31, 2016, that are included in the table above.
Collateralized Debt Obligation Vehicles
The Corporation receives fees for structuring CDO vehicles, which hold diversified pools of fixed-income securities, typically corporate debt or ABS, which the CDO vehicles fund by issuing multiple tranches of debt and equity securities. CDOs are generally managed by third-party portfolio managers. The Corporation typically transfers assets to these CDOs, holds securities issued by the CDOs and may be a derivative counterparty to the CDOs. The Corporation's maximum loss exposure to consolidated and unconsolidated CDOs totaled $\$ 508$
million and $\$ 430$ million at June 30, 2017 and December 31, 2016.
Investment Vehicles
The Corporation sponsors, invests in or provides financing, which may be in connection with the sale of assets, to a variety of investment vehicles that hold loans, real estate, debt securities or other financial instruments and are designed to provide the desired investment profile to investors or the Corporation. At June 30, 2017 and December 31, 2016, the Corporation's consolidated investment vehicles had total assets of $\$ 626$ million and $\$ 846$ million. The Corporation also held investments in unconsolidated vehicles with total assets of $\$ 21.2$ billion and $\$ 17.3$ billion at June 30, 2017 and December 31, 2016. The Corporation's maximum loss exposure associated with both consolidated and unconsolidated investment vehicles totaled $\$ 4.9$ billion and $\$ 5.1$ billion at June 30, 2017 and December 31, 2016 comprised primarily of on-balance sheet assets less non-recourse liabilities.
In prior periods, the Corporation transferred servicing advance receivables to independent third parties in connection with the sale of MSRs. Portions of the receivables were transferred into unconsolidated securitization trusts. The Corporation retained senior interests in such receivables with a maximum loss exposure and funding obligation of \$90 million and $\$ 150$ million, including a funded balance of $\$ 58$ million and $\$ 75$ million at June 30, 2017 and December 31, 2016, which were classified in other debt securities carried at fair value.

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Leveraged Lease Trusts
The Corporation's net investment in consolidated leveraged lease trusts totaled $\$ 2.4$ billion and $\$ 2.6$ billion at June 30, 2017 and December 31, 2016. The trusts hold long-lived equipment such as rail cars, power generation and distribution equipment, and commercial aircraft. The Corporation structures the trusts and holds a significant residual interest. The net investment represents the Corporation's maximum loss exposure to the trusts in the unlikely event that the leveraged lease investments become worthless. Debt issued by the leveraged lease trusts is non-recourse to the Corporation.

## Tax Credit Vehicles

The Corporation holds investments in unconsolidated limited partnerships and similar entities that construct, own and operate affordable housing, wind and solar projects. An unrelated third party is typically the general partner or managing member and has control over the significant activities of the vehicle. The Corporation earns a return primarily through the receipt of tax credits allocated to the projects. The maximum loss exposure included in the Other VIEs table was $\$ 13.3$ billion and $\$ 12.6$ billion at June 30, 2017 and December 31, 2016. The Corporation's risk of loss is generally mitigated by policies requiring that the project qualify for the expected tax credits prior to making its investment.
The Corporation's investments in affordable housing partnerships, which are reported in other assets on the Consolidated Balance Sheet, totaled $\$ 7.5$ billion and $\$ 7.4$ billion, including unfunded commitments to provide capital contributions of $\$ 2.7$ billion and $\$ 2.7$ billion at June 30, 2017 and December 31, 2016. The unfunded commitments are expected to be paid over the next five years. The Corporation recognized tax credits and other tax benefits from investments in affordable housing partnerships of $\$ 281$ million and $\$ 532$ million, and reported pre-tax losses in other noninterest income of $\$ 207$ million and $\$ 403$ million for the three and six months ended June 30, 2017. For the same periods in 2016, the Corporation recognized tax credits and other tax benefits of $\$ 289$ million and $\$ 482$ million, and pre-tax losses of $\$ 198$ million and $\$ 396$ million. Tax credits are recognized as part of the Corporation's annual effective tax rate used to determine tax expense in a given quarter. Accordingly, the portion of a year's expected tax benefits recognized in any given quarter may differ from 25 percent. The Corporation may from time to time be asked to invest additional amounts to support a troubled affordable housing project. Such additional investments have not been and are not expected to be significant.
NOTE 7 Representations and Warranties Obligations and Corporate Guarantees
For information on representations and warranties obligations and corporate guarantees and related settlement actions, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Unresolved Repurchase Claims
Unresolved representations and warranties repurchase claims represent the notional amount of repurchase claims made by counterparties, typically the outstanding principal balance or the unpaid principal balance at the time of default. In the case of first-lien mortgages, the claim amount is often significantly greater than
the expected loss amount due to the benefit of collateral and, in some cases, mortgage insurance (MI) or mortgage guarantee payments. Claims received from a counterparty remain outstanding until the underlying loan is repurchased, the claim is rescinded by the counterparty, the Corporation determines that the applicable statute of limitations has expired, or representations and warranties claims with respect to the applicable trust are settled, and fully and finally released. The Corporation does not include duplicate claims in the amounts disclosed.
The following table presents unresolved repurchase claims at June 30, 2017 and December 31, 2016. The unresolved repurchase claims include only claims where the Corporation believes that the counterparty has the contractual right to submit claims. The unresolved repurchase claims predominantly relate to subprime and pay option first-lien loans and home equity loans. For more information, see Private-label Securitizations and Whole-loan Sales Experience in the MD\&A of the Corporation's 2016 Annual Report on Form 10-K, as well as Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

Unresolved Repurchase Claims by Counterparty, net of duplicate claims
(Dollars in millions)
June 30 December 31
By counterparty
Private-label securitization trustees, whole-loan investors, including third-party securitization sponsors and other ${ }^{(1)}$
\(\begin{array}{lll}Monolines \& \begin{array}{l}1,582 <br>

GSEs\end{array} \&\)| 1,583 |
| :--- |\end{array}

Total unresolved repurchase claims by counterparty, net of duplicate claims
\$17,613 \$ 18,277
(1) Includes $\$ 11.3$ billion and $\$ 11.9$ billion of claims based on individual file reviews and $\$ 4.7$ billion and $\$ 4.8$ billion of claims submitted without individual file reviews at June 30, 2017 and December 31, 2016.
During the six months ended June 30, 2017, the Corporation received $\$ 49$ million in new repurchase claims and $\$ 714$ million in claims were resolved, including $\$ 640$ million related to settlements. Of the remaining unresolved monoline claims, substantially all of the claims pertain to second-lien loans and are currently the subject of litigation with a single monoline insurer. There may be additional claims or file requests in the future.
In addition to the unresolved repurchase claims in the Unresolved Repurchase Claims by Counterparty, net of duplicate claims table, the Corporation has received notifications from sponsors of third-party securitizations with whom the Corporation engaged in whole-loan transactions indicating that the Corporation may have indemnity obligations with respect to loans for which the Corporation has not received a repurchase request. These outstanding notifications totaled $\$ 1.3$ billion at both June 30, 2017 and December 31, 2016. There were no new notifications received during the six months ended June 30, 2017.
The presence of repurchase claims on a given trust, receipt of notices of indemnification obligations and receipt of other communications, as discussed above, are all factors that inform the Corporation's liability for representations and warranties and the corresponding estimated range of possible loss.

[^26]
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## Private-label Securitizations and Whole-loan Sales Experience

Prior to 2009, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. For more information on private-label securitizations and whole-loan sales experience, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
At June 30, 2017 and December 31, 2016, the notional amount of unresolved repurchase claims submitted by private-label securitization trustees, whole-loan investors, including third-party securitization sponsors, and others was $\$ 16.0$ billion and $\$ 16.7$ billion. The notional amount of unresolved repurchase claims at June 30, 2017 and December 31 , 2016 included $\$ 5.1$ billion and $\$ 5.6$ billion of claims related to loans in specific private-label securitization groups or tranches where the Corporation owns substantially all of the outstanding securities or will otherwise realize the benefit of any repurchase claims paid.
The overall decrease in the notional amount of outstanding unresolved repurchase claims in the six months ended June 30,2017 was primarily due to claims that were resolved as a result of settlements. Outstanding repurchase claims remained unresolved primarily due to (1) the level of detail, support and analysis accompanying such claims, which impact overall claim
quality and, therefore, claims resolution, and (2) the lack of an established process to resolve disputes related to these claims.
Liability for Representations and Warranties and Corporate Guarantees and Estimated Range of Possible Loss The liability for representations and warranties and corporate guarantees is included in accrued expenses and other liabilities on the Consolidated Balance Sheet and the related provision is included in mortgage banking income in the Consolidated Statement of Income.
The Corporation's representations and warranties liability and the corresponding estimated range of possible loss at June 30, 2017 considers, among other things, the repurchase experience implied in the settlements with BNY Mellon and other counterparties. Since the securitization trusts that were included in the settlements with BNY Mellon and other counterparties differ from other securitization trusts, the Corporation adjusts the experience implied by those prior settlements based on the characteristics of those trusts where the Corporation has a continuing possibility of timely claims in order to determine the representations and warranties liability and the corresponding estimated range of possible loss.
The table below presents a rollforward of the liability for representations and warranties and corporate guarantees.
Representations and Warranties and Corporate Guarantees
(Dollars in millions)
Liability for representations and warranties and corporate guarantees, beginning of period
Additions for new sales
Payments ${ }^{(1)}$
Provision (benefit)
Liability for representations and warranties and corporate guarantees, June 30

| Three Months <br> Ended June 30 | Six Months Ended |  |
| :--- | :--- | :--- | :--- |
| June 30 |  |  |

(1) In February 2016, the Corporation made an $\$ 8.5$ billion settlement payment to BNY Mellon as part of the settlement with BNY Mellon.
The representations and warranties liability represents the Corporation's best estimate of probable incurred losses as of June 30, 2017. However, it is reasonably possible that future representations and warranties losses may occur in excess of the amounts recorded for these exposures. The Corporation currently estimates that the range of possible loss for representations and warranties exposures could be up to $\$ 2$ billion over existing accruals at June 30, 2017. The Corporation treats claims that are time-barred as resolved and does not consider such claims in the estimated range of possible loss. The estimated range of possible loss reflects principally exposures related to loans in private-label

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securitization trusts. It represents a reasonably possible loss, but
does not represent a probable loss, and is based on currently available information, significant judgment and a number of assumptions that are subject to change. For more information on the liability for representations and warranties exposures and the corresponding estimated range of possible loss, see Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2017, and Note 7 - Representations and Warranties Obligations and Corporate Guarantees to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

NOTE 8 Goodwill and Intangible Assets
Goodwill
The table below presents goodwill balances by business segment and All Other at June 30, 2017 and December 31, 2016. The reporting units utilized for goodwill impairment testing are the operating segments or one level below. For more information, see Note 8 - Goodwill and Intangible Assets to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

## Goodwill

(Dollars in millions)
Consumer Banking
Global Wealth \& Investment Management
Global Banking
June 30 December 31
20172016
\$30,123 \$ 30,123
9,681 9,681

Global Markets $\quad 5,197 \quad 5,197$
All Other $45 \quad 820$
Less: Goodwill of business held for sale ${ }^{(1)}$ - (775)
Total goodwill \$68,969 \$ 68,969
Reflects the goodwill assigned to the non-U.S. consumer credit card business, which was included in assets of
${ }^{(1)}$ business held for sale on the Consolidated Balance Sheet at December 31, 2016. On June 1, 2017, the Corporation completed the sale of this business.
During the three months ended June 30, 2017, the Corporation completed its annual goodwill impairment test as of June 30, 2017 for all applicable reporting units. Based on the results of the annual goodwill impairment test, the Corporation determined there was no impairment. For more information regarding annual goodwill impairment testing, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Intangible Assets
The table below presents the gross and net carrying values and accumulated amortization for intangible assets at June 30, 2017 and December 31, 2016.

Intangible Assets (1,2)
(Dollars in millions)
June 30, $2017 \quad$ December 31, 2016

Purchased credit card and affinity relationships $\begin{array}{llllll}\$ 5,919 & \$ 5,502 & \$ 417 & \$ 6,830 & \$ 6,243 & \$ 587\end{array}$
$\begin{array}{lllllll}\text { Core deposit and other intangibles }{ }^{(3)} & 3,835 & 2,095 & 1,740 & 3,836 & 2,046 & 1,790\end{array}$
$\begin{array}{llllllll}\text { Customer relationships } & 3,886 & 3,433 & 453 & 3,887 & 3,275 & 612\end{array}$
Total intangible assets (4)
\$13,640 \$ 11,030

| Net <br> Carrying | Gross <br> Carrying | Accumulated <br> Amortization | Net <br> Carrying <br> Value |
| :--- | :--- | :--- | :--- |
| Value |  |  |  |
| $\$ 417$ | $\$ 6,830$ | $\$ 6,243$ | $\$ 587$ |
| 1,740 | 3,836 | 2,046 | 1,790 |
| 453 | 3,887 | 3,275 | 612 |
| $\$ 2,610$ | $\$ 14,553$ | $\$ 11,564$ | $\$ 2,989$ |

(1) Excludes fully amortized intangible assets.
(2) At June 30, 2017 and December 31, 2016, none of the intangible assets were impaired.
(3) Includes $\$ 1.6$ billion at both June 30, 2017 and December 31, 2016 of intangible assets associated with trade names that have an indefinite life and, accordingly, are not amortized.
Includes $\$ 67$ million at December 31, 2016 of intangible assets assigned to the non-U.S. consumer credit card
${ }^{(4)}$ business, which was included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
Amortization of intangibles expense was $\$ 160$ million and $\$ 322$ million for the three and six months ended June 30 , 2017 compared to $\$ 186$ million and $\$ 373$ million for the same periods in 2016 . The Corporation estimates aggregate amortization expense will be $\$ 298$ million for the remainder of 2017 , and $\$ 538$ million, $\$ 109$ million, $\$ 48$ million, $\$ 2$ million and $\$ 1$ million for the years through 2022.

NOTE 9 Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings The following table presents federal funds sold or purchased, securities financing agreements, which include securities borrowed or purchased under agreements to resell and securities loaned or sold under agreements to repurchase, and short-term borrowings. The Corporation elects to account for certain securities financing agreements and short-term borrowings under the fair value option. For more information on the election of the fair value option, see Note 15 - Fair Value Option.

$\mathrm{n} / \mathrm{a}=$ not applicable
Offsetting of Securities Financing Agreements
The Corporation enters into securities financing agreements to accommodate customers (also referred to as "matched-book transactions"), obtain securities to cover short positions, and to finance inventory positions. Substantially all of the Corporation's securities financing activities are transacted under legally enforceable master repurchase agreements or legally enforceable master securities lending agreements that give the Corporation, in the event of default by the counterparty, the right to liquidate securities held and to offset receivables and payables with the same counterparty. For more information, see Note 10 - Federal Funds Sold or Purchased, Securities Financing Agreements and

Short-term Borrowings to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
The Securities Financing Agreements table presents securities financing agreements included on the Consolidated Balance Sheet in federal funds sold and securities borrowed or purchased under agreements to resell, and in federal funds purchased and securities loaned or sold under agreements to repurchase at June 30, 2017 and December 31, 2016. Balances are presented on a gross basis, prior to the application of counterparty netting. Gross assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements. For more information on the offsetting of derivatives, see Note 2 - Derivatives.

Securities Financing Agreements
(Dollars in millions)
June 30, 2017

| Gross | Net |  |  |
| :--- | :--- | :--- | :--- |
| Assets/Liahounts | Balance | Financial | Net |
| (1) | Sheet | Instruments | Net |
|  | Amsets/Liabilities |  |  |

Securities borrowed or purchased under agreements to resell ${ }^{(3)}$

Securities loaned or sold under agreements to repurchase
Other ${ }^{(4)}$
Total

| $\$ 350,380$ | $\$(153,981)$ | $\$ 196,399$ | $\$(166,044)$ | $\$ 30,355$ |
| :--- | :--- | :--- | :--- | :--- |
| $17,130-$ | 17,130 | $(17,130)$ | - |  |
| $\$ 367,510$ | $\$(153,981)$ | $\$ 213,529$ | $\$(183,174)$ | $\$ 30,355$ |

December 31, 2016
Securities borrowed or purchased under agreements to resell ${ }^{(3)}$

Securities loaned or sold under agreements to repurchase
Other ${ }^{(4)}$
Total
\$326,970 \$(128,746) \$198,224 \$(154,974) \$ 43,250
(1) Includes activity where uncertainty exists as to the enforceability of certain master netting agreements under bankruptcy laws in some countries or industries.
Financial instruments includes securities collateral received or pledged under repurchase or securities lending agreements where there is a legally enforceable master netting agreement. These amounts are not offset on the
${ }^{(2)}$ Consolidated Balance Sheet but are shown as a reduction to derive a net asset or liability. Securities collateral received or pledged where the legal enforceability of the master netting agreements is uncertain is excluded from the table.
(3) Excludes repurchase activity of $\$ 10.3$ billion and $\$ 10.1$ billion reported in loans and leases on the Consolidated Balance Sheet at June 30, 2017 and December 31, 2016.
Balance is reported in accrued expenses and other liabilities on the Consolidated Balance Sheet and relates to
(4) transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged as collateral or sold. In these transactions, the Corporation recognizes an asset at fair value, representing the securities received, and a liability, representing the obligation to return those securities.

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Repurchase Agreements and Securities Loaned Transactions Accounted for as Secured Borrowings The tables below present securities sold under agreements to repurchase and securities loaned by remaining contractual term to maturity and class of collateral pledged. Included in "Other" are transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be
pledged as collateral or sold. Certain agreements contain a right to substitute collateral and/or terminate the agreement prior to maturity at the option of the Corporation or the counterparty. Such agreements are included in the table below based on the remaining contractual term to maturity. At June 30, 2017 and December 31, 2016, the Corporation had no outstanding repurchase-to-maturity transactions.

Remaining Contractual Maturity
(Dollars in millions)
June 30, 2017

| (Dollars in millions) | Overnight and Continuou | 30 Days or Less | After 30 Days Through 90 Days | Greater than 90 <br> Days ${ }^{(1)}$ | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Securities sold under agreements to repurchase | \$128,827 | \$91,895 | \$ 48,976 | \$55,630 | \$325,328 |
| Securities loaned | 17,670 | 864 | 2,017 | 4,501 | 25,052 |
| Other | 17,130 | - | - | - | 17,130 |
| Total | \$163,627 | \$92,759 | \$ 50,993 | \$60,131 | \$367,510 |

December 31, 2016
Securities sold under agreements to repurchase $\$ 129,853 \$ 77,780 \$ 31,851 \quad \$ 40,752 \$ 280,236$

| Securities loaned | 8,564 | 6,602 | 1,473 | 2,153 | 18,792 |
| :--- | :--- | :--- | :--- | :--- | :--- |

Other 14,448 - $\quad$ - $\quad$ - 14,448

Total \$152,865 \$84,382 \$33,324 \$42,905 \$313,476
${ }^{(1)}$ No agreements have maturities greater than three years.
Class of Collateral Pledged
(Dollars in millions)
June 30, 2017
Securities
Sold
Under Securities
Agreementsoaned
to
Repurchase
U.S. government and agency securities \$176,946 \$- \$185 \$177,131

Corporate securities, trading loans and other $12,285 \quad 2,309 \quad 194 \quad 14,788$
$\begin{array}{lllll}\text { Equity securities } & 30,629 & 16,057 & 16,701 & 63,387\end{array}$
$\begin{array}{lllll}\text { Non-U.S. sovereign debt } & 99,699 & 6,686 & 50 & 106,435\end{array}$
Mortgage trading loans and ABS 5,769 - - 5,769
Total
\$325,328 \$25,052 \$17,130 \$367,510
December 31, 2016
U.S. government and agency securities $\quad \$ 153,184 \$-\quad \$ 70 \quad \$ 153,254$

Corporate securities, trading loans and other $11,086 \quad 1,630 \quad 127 \quad 12,843$
$\begin{array}{lllll}\text { Equity securities } & 24,007 & 11,175 & 14,196 & 49,378\end{array}$
$\begin{array}{lllll}\text { Non-U.S. sovereign debt } & 84,171 & 5,987 & 55 & 90,213\end{array}$

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| Mortgage trading loans and ABS | 7,788 | - | - | 7,788 |
| :--- | :--- | :--- | :--- | :--- |
| Total | $\$ 280,236$ | $\$ 18,792$ | $\$ 14,448$ | $\$ 313,476$ |

The Corporation is required to post collateral with a market value equal to or in excess of the principal amount borrowed under repurchase agreements. For securities loaned transactions, the Corporation receives collateral in the form of cash, letters of credit or other securities. To help ensure that the market value of the underlying collateral remains sufficient, collateral is generally valued daily, and the Corporation may be required to deposit
additional collateral or may receive or return collateral pledged when appropriate. Repurchase agreements and securities loaned transactions are generally either overnight, continuous (i.e., no stated term) or short-term. The Corporation manages liquidity risks related to these agreements by sourcing funding from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate.

[^27]NOTE 10 Commitments and Contingencies
In the normal course of business, the Corporation enters into a number of off-balance sheet commitments. These commitments expose the Corporation to varying degrees of credit and market risk and are subject to the same credit and market risk limitation reviews as those instruments recorded on the Consolidated Balance Sheet. For more information on commitments and contingencies, see Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Credit Extension Commitments
The Corporation enters into commitments to extend credit such as loan commitments, standby letters of credit (SBLCs) and commercial letters of credit to meet the financing needs of its customers. The table below includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g., syndicated or participated) to other financial institutions. The distributed amounts were $\$ 11.6$ billion and $\$ 12.1$
billion at June 30, 2017 and December 31, 2016. At June 30, 2017, the carrying value of these commitments, excluding commitments accounted for under the fair value option, was $\$ 775$ million, including deferred revenue of $\$ 18$ million and a reserve for unfunded lending commitments of $\$ 757$ million. At December 31, 2016, the comparable amounts were $\$ 779$ million, $\$ 17$ million and $\$ 762$ million, respectively. The carrying value of these commitments is classified in accrued expenses and other liabilities on the Consolidated Balance Sheet.
The table below also includes the notional amount of commitments of $\$ 4.5$ billion and $\$ 7.0$ billion at June 30,2017 and December 31, 2016 that are accounted for under the fair value option. However, the table below excludes cumulative net fair value of $\$ 138$ million and $\$ 173$ million on these commitments, which is classified in accrued expenses and other liabilities. For more information regarding the Corporation's loan commitments accounted for under the fair value option, see Note 15 - Fair Value Option.

Credit Extension Commitments
(Dollars in millions)

Notional amount of credit extension commitments
Loan commitments
June 30, 2017

| (Dollars in millions) | June 30, 2017 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Expire in <br> One <br> Year or Less | Expire | Expire | Expire <br> After <br> Five <br> Years | Total |
|  |  | After | After |  |  |
|  |  | One | Three |  |  |
|  |  | Year | Years |  |  |
|  |  | Through | Through |  |  |
|  |  | Three | Five |  |  |
|  |  | Years | Years |  |  |
| Notional amount of credit extension commitments |  |  |  |  |  |
| Loan commitments | \$75,829 | \$135,276 | \$ 147,581 | \$21,895 | \$380,581 |
| Home equity lines of credit | 8,184 | 6,864 | 2,186 | 28,581 | 45,815 |
| Standby letters of credit and financial guarantees ${ }^{(1)}$ | 21,287 | 10,535 | 2,743 | 1,328 | 35,893 |
| Letters of credit | 1,371 | 108 | 76 | 58 | 1,613 |
| Legally binding commitments | 106,671 | 152,783 | 152,586 | 51,862 | 463,902 |
| Credit card lines ${ }^{(2)}$ | 360,848 | - | - | - | 360,848 |
| Total credit extension commitments | \$467,519 | \$152,783 | \$ 152,586 | \$51,862 | \$824,750 |

December 31, 2016
Notional amount of credit extension commitments
Loan commitments

| $\$ 82,609$ | $\$ 133,063$ | $\$ 152,854$ | $\$ 22,129$ | $\$ 390,655$ |
| :--- | :--- | :--- | :--- | :--- |
| 8,806 | 10,701 | 2,644 | 25,050 | 47,201 |
| 19,165 | 10,754 | 3,225 | 1,027 | 34,171 |
| 1,285 | 103 | 114 | 53 | 1,555 |
| 111,865 | 154,621 | 158,837 | 48,259 | 473,582 |
| 377,773 | - | - | - | 377,773 |

## Total credit extension commitments

\$489,638 \$154,621 \$158,837 \$48,259 \$851,355
The notional amounts of SBLCs and financial guarantees classified as investment grade and non-investment grade ${ }^{(1)}$ based on the credit quality of the underlying reference name within the instrument were $\$ 27.5$ billion and $\$ 8.0$ billion at June 30, 2017, and $\$ 25.5$ billion and $\$ 8.3$ billion at December 31, 2016. Amounts in the table include consumer SBLCs of \$397 million and \$376 million at June 30, 2017 and December 31, 2016.
(2) Includes business card unused lines of credit.

Legally binding commitments to extend credit generally have specified rates and maturities. Certain of these commitments have adverse change clauses that help to protect the Corporation against deterioration in the borrower's ability to pay.
Other Commitments
At June 30, 2017 and December 31, 2016, the Corporation had commitments to purchase loans (e.g., residential mortgage and commercial real estate) of $\$ 598$ million and $\$ 767$ million, and commitments to purchase commercial loans of $\$ 2.7$ billion and $\$ 636$ million, which upon settlement will be included in loans or LHFS.
At June 30, 2017 and December 31, 2016, the Corporation had commitments to purchase commodities, primarily liquefied
natural gas of $\$ 1.6$ billion and $\$ 1.9$ billion, which upon settlement will be included in trading account assets. At June 30, 2017 and December 31, 2016, the Corporation had commitments to enter into resale and forward-dated resale and securities borrowing agreements of $\$ 74.2$ billion and $\$ 48.9$ billion, and commitments to enter into forward-dated repurchase and securities lending agreements of $\$ 41.3$ billion and $\$ 24.4$ billion. These commitments expire primarily within the next 12 months.
The Corporation has entered into agreements to purchase retail automotive loans from certain auto loan originators. These agreements provide for stated purchase amounts and contain cancellation provisions that allow the Corporation to terminate its commitment to purchase at any time, with a minimum notification period. At June 30, 2017 and December 31, 2016, the

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Corporation's maximum purchase commitment was $\$ 345$ million and $\$ 475$ million. In addition, the Corporation has a commitment to originate or purchase auto loans and leases from a strategic partner up to $\$ 1.5$ billion for the remainder of 2017, with this commitment expiring on December 31, 2017.
The Corporation is a party to operating leases for certain of its premises and equipment. Commitments under these leases are approximately $\$ 1.2$ billion, $\$ 2.2$ billion, $\$ 2.0$ billion, $\$ 1.8$ billion and $\$ 1.5$ billion for the remainder of 2017 and the years through 2021, respectively, and $\$ 5.7$ billion in the aggregate for all years thereafter.
Other Guarantees
Bank-owned Life Insurance Book Value Protection
The Corporation sells products that offer book value protection to insurance carriers who offer group life insurance policies to corporations, primarily banks. At June 30, 2017 and December 31, 2016, the notional amount of these guarantees, which are recorded as derivatives totaled $\$ 14.0$ billion and $\$ 13.9$ billion. At both June 30, 2017 and December 31, 2016, the Corporation's maximum exposure related to these guarantees totaled $\$ 3.2$ billion, with estimated maturity dates between 2031 and 2039. The net fair value including the fee receivable associated with these guarantees was $\$ 2$ million and $\$ 4$ million at June 30, 2017 and December 31, 2016, and reflects the probability of surrender as well as the multiple structural protection features in the contracts.
Merchant Services
In accordance with credit and debit card association rules, the Corporation sponsors merchant processing servicers that process credit and debit card transactions on behalf of various merchants. In connection with these services, a liability may arise in the event of a billing dispute between the merchant and a cardholder that is ultimately resolved in the cardholder's favor. If the merchant defaults on its obligation to reimburse the cardholder, the cardholder, through its issuing bank, generally has until six months after the date of the transaction to present a chargeback to the merchant processor, which is primarily liable for any losses on covered transactions. However, if the merchant processor fails to meet its obligation to reimburse the cardholder for disputed transactions, then the Corporation, as the sponsor, could be held liable for the disputed amount. For the three and six months ended June 30, 2017, the sponsored entities processed and settled $\$ 204.6$ billion and $\$ 391.4$ billion of transactions and recorded losses of $\$ 8$ million and $\$ 15$ million. For the three and six months ended June 30, 2016, the sponsored entities processed and settled $\$ 178.4$ billion and $\$ 337.8$ billion of transactions and recorded losses of $\$ 8$ million and $\$ 14$ million. A significant portion of this activity was processed by a joint venture in which the Corporation holds a 49 percent ownership, and is recorded in other assets on the Consolidated Balance Sheet and in All Other. At both June 30, 2017 and December 31, 2016, the carrying value of the Corporation's investment in the merchant services joint venture was $\$ 2.9$ billion.
As of June 30, 2017 and December 31, 2016, the maximum potential exposure for sponsored transactions totaled $\$ 323.8$ billion and $\$ 325.7$ billion. However, the Corporation believes that the maximum potential exposure is not representative of the actual potential loss exposure and does not expect to make material payments in connection with these guarantees.

## Other Guarantees

The Corporation has entered into additional guarantee agreements and commitments, including sold risk participation swaps, liquidity facilities, lease-end obligation agreements, partial credit guarantees on certain leases, real estate joint venture guarantees, divested business commitments and sold put options that require gross settlement. The maximum potential future payment under these agreements was approximately $\$ 6.6$ billion and $\$ 6.7$ billion at June 30, 2017 and December 31, 2016. The estimated maturity dates of these obligations extend up to 2040. The Corporation has made no material payments under these guarantees.
In the normal course of business, the Corporation periodically guarantees the obligations of its affiliates in a variety of transactions including ISDA-related transactions and non-ISDA related transactions such as commodities trading, repurchase agreements, prime brokerage agreements and other transactions.
Payment Protection Insurance Claims Matter
On June 1, 2017, the Corporation completed the sale of its non-U.S. consumer credit card business. Included in the calculation of the gain on sale, the Corporation recorded an obligation to indemnify the purchaser for substantially all PPI exposure above reserves assumed by the purchaser.
Litigation and Regulatory Matters

The following supplements the disclosure in Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K and in Note 10 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2017 (the prior commitments and contingencies disclosure).
In the ordinary course of business, the Corporation and its subsidiaries are routinely defendants in or parties to many pending and threatened legal, regulatory and governmental actions and proceedings.
In view of the inherent difficulty of predicting the outcome of such matters, particularly where the claimants seek very large or indeterminate damages or where the matters present novel legal theories or involve a large number of parties, the Corporation generally cannot predict what the eventual outcome of the pending matters will be, what the timing of the ultimate resolution of these matters will be, or what the eventual loss, fines or penalties related to each pending matter may be.
In accordance with applicable accounting guidance, the Corporation establishes an accrued liability when those matters present loss contingencies that are both probable and estimable. In such cases, there may be an exposure to loss in excess of any amounts accrued. As a matter develops, the Corporation, in conjunction with any outside counsel handling the matter, evaluates on an ongoing basis whether such matter presents a loss contingency that is probable and estimable. Once the loss contingency is deemed to be both probable and estimable, the Corporation will establish an accrued liability and record a corresponding amount of litigation-related expense. The Corporation continues to monitor the matter for further developments that could affect the amount of the accrued liability that has been previously established. Excluding expenses of internal and external legal service providers, litigation-related expense of $\$ 192$ million and $\$ 466$ million was recognized for the three and six months ended June 30, 2017 compared to $\$ 270$ million and $\$ 658$ million for the same periods in 2016.

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For a limited number of the matters disclosed in this Note, and in the prior commitments and contingencies disclosure, for which a loss, whether in excess of a related accrued liability or where there is no accrued liability, is reasonably possible in future periods, the Corporation is able to estimate a range of possible loss. In determining whether it is possible to estimate a range of possible loss, the Corporation reviews and evaluates its matters on an ongoing basis, in conjunction with any outside counsel handling the matter, in light of potentially relevant factual and legal developments. In cases in which the Corporation possesses sufficient appropriate information to estimate a range of possible loss, that estimate is aggregated and disclosed below. There may be other disclosed matters for which a loss is probable or reasonably possible but such an estimate of the range of possible loss may not be possible. For those matters where an estimate of the range of possible loss is possible, management currently estimates the aggregate range of possible loss is $\$ 0$ to $\$ 1.5$ billion in excess of the accrued liability (if any) related to those matters. This estimated range of possible loss is based upon currently available information and is subject to significant judgment and a variety of assumptions, and known and unknown uncertainties. The matters underlying the estimated range will change from time to time, and actual results may vary significantly from the current estimate. Therefore, this estimated range of possible loss represents what the Corporation believes to be an estimate of possible loss only for certain matters meeting these criteria. It does not represent the Corporation's maximum loss exposure. Information is provided below, or in the prior commitments and contingencies disclosure, regarding the nature of all of these contingencies and, where specified, the amount of the claim associated with these loss contingencies. Based on current knowledge, management does not believe that loss contingencies arising from pending matters, including the matters described herein and in the prior commitments and contingencies disclosure, will have a material adverse effect on the consolidated financial position or liquidity of the Corporation. However, in light of the inherent uncertainties involved in these matters, some of which are beyond the Corporation's control, and the very large or indeterminate damages sought in some of these matters, an adverse outcome in one or more of these matters could be material to the Corporation's results of operations or liquidity for any particular reporting period.
Bond Insurance Litigation
Ambac v. Countrywide 1
On May 16, 2017, the First Department issued its decision on the parties' summary judgment cross-appeals. Among other things,
the First Department reversed on the applicability of New York insurance law to Ambac's common-law fraud claim, ruling that Ambac must prove all of the elements of its fraudulent inducement claim, including justifiable reliance and loss causation; reversed as to Ambac's remedy for its breach of contract claims, finding that Ambac's sole remedy is the repurchase protocol of cure, repurchases, or substitution of any materially defective loan; affirmed the trial court's ruling that Ambac's compensatory damages claim was an impermissible request for rescissory damages; reversed the dismissal of Ambac's claim for reimbursement of claims payments, but affirmed the dismissal of Ambac's claim for reimbursements of attorneys' fees; and reversed as to the meaning of specific representations and warranties, ruling that disputed issues of fact precluded summary judgment. On July 25, 2017, the First Department granted Ambac's motion for leave to appeal to the Court of Appeals. Separately, the First Department reversed summary judgment for Ambac on the continuity-of-ownership element of its New York law de facto merger claim and remanded for fact issues, while concluding that no continuity of ownership exists where the asset-seller receives fair value, and that the fair value element requires the asset-seller's shareholders to acquire their shares in the buyer as an element of the asset purchase transaction; reversed and dismissed Ambac's claim that the Corporation impliedly assumed Countrywide's liabilities; affirmed the ruling that fact issues prelude summary judgment on Ambac's alter-ego claim; and ruled that New York law applies to the de facto merger determination.
Ambac v. Countrywide III
On June 30, 2017, the Wisconsin Supreme Court reversed the decision of the Wisconsin Court of Appeals and held that Countrywide did not consent to the jurisdiction of the Wisconsin courts by registering to do business in Wisconsin. It remanded the case to the Court of Appeals for further consideration of whether specific jurisdiction exists for this matter.
U.S. Bank -- Harborview Repurchase Litigation

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On June 12, 2017, U.S. Bank filed an Amended Petition in the Minnesota Action informing the court that, while a vote of the certificate-holders supports acceptance of the proposed settlement, an expert engaged by U.S. Bank concluded that the proposed settlement amount fell below what the expert considers to be a reasonable settlement range and recommended that U.S. Bank reject the proposed settlement. As a result, the Amended Petition seeks authorization from the Minnesota court to reject the proposed settlement and to continue the litigation in New York state court.

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NOTE 11 Shareholders' Equity
Common Stock

Declared Quarterly Cash Dividends on Common Stock ${ }^{(1)}$

|  |  |  | Dividend <br> Declaration Date |
| :--- | :--- | :--- | :--- |
|  | Record Date | Payment Date | Per <br> Share |
| July 26, 2017 | September 1, 2017 | September 29, 2017 | $\$ 0.12$ |
| April 26, 2017 | June 2, 2017 | June 30, 2017 | 0.075 |
| January 26, 2017 | March 3, 2017 | March 31, 2017 | 0.075 |
| (1) In 2017 and through July 31, 2017. |  |  |  |

On June 28, 2017, following the Federal Reserve's non-objection to the Corporation's 2017 Comprehensive Capital Analysis and Review (CCAR) capital plan, the Board of Directors authorized the repurchase of $\$ 12.9$ billion in common stock from July 1, 2017 through June 30, 2018, including approximately $\$ 900$ million to offset the effect of equity-based compensation plans during the same period. The common stock repurchase authorization includes both common stock and warrants. The Corporation's 2017 capital plan also included a request to increase the quarterly common stock dividend from $\$ 0.075$ per share to $\$ 0.12$ per share.
On January 13,2017 , the Corporation announced a plan to repurchase $\$ 1.8$ billion of common stock during the first half of 2017, to which the Federal Reserve did not object, in addition to the previously announced repurchases associated with the 2016 CCAR capital plan. During the three and six months ended June 30, 2017, the Corporation repurchased and retired 96 million and 211 million shares of common stock, which reduced shareholders' equity by $\$ 2.2$ billion and $\$ 5.0$ billion, respectively.
The Corporation has warrants outstanding and exercisable to purchase 122 million shares of its common stock expiring on

October 28,2018 , and warrants outstanding and exercisable to purchase 150 million shares of common stock expiring on January 16, 2019. These warrants were originally issued in connection with preferred stock issuances to the U.S. Department of the Treasury in 2009 and 2008, and are listed on the New York Stock Exchange. The exercise price of the warrants expiring on January 16,2019 is subject to continued adjustment each time the quarterly cash dividend is in excess of $\$ 0.01$ per common share to compensate the holders of the warrants for dilution resulting from an increased dividend. As a result of the Corporation's second-quarter 2017 dividend of $\$ 0.075$ per common share, the exercise price of the warrants expiring on January 16,2019 was adjusted to $\$ 12.867$ per share. The warrants expiring on October 28, 2018, which have an exercise price of $\$ 30.79$ per share, also contain this anti-dilution provision except the adjustment is triggered only when the Corporation declares quarterly dividends at a level greater than $\$ 0.32$ per common share.
During the six months ended June 30, 2017, in connection with employee stock plans, the Corporation issued approximately 60 million shares and repurchased approximately 24 million shares of its common stock to satisfy tax withholding obligations. At June 30, 2017, the Corporation had reserved 1.6 billion unissued shares of common stock for future issuances under employee stock plans, common stock warrants, convertible notes and preferred stock.
Preferred Stock
During the three months ended March 31, 2017 and June 30, 2017, the Corporation declared \$502 million and \$361 million of cash dividends on preferred stock, or a total of $\$ 863$ million for the six months ended June 30, 2017. There were no issuances of preferred stock during the six months ended June 30, 2017.

[^29]NOTE 12 Accumulated Other Comprehensive Income (Loss)
The table below presents the changes in accumulated OCI after-tax for the six months ended June 30, 2017 and 2016.


The table below presents the net change in fair value recorded in accumulated OCI, net realized gains and losses reclassified into earnings and other changes for each component of OCI before- and after-tax for the six months ended June 30, 2017 and 2016.

Changes in OCI Components Before- and After-tax
Six Months Ended June 30

2017
Before-tax $\begin{gathered}\text { Tax } \\ \text { effect }\end{gathered}$
$\$ 846 \quad \$(315) \$ 531 \quad \$ 5,530 \quad \$(2,101) \$ 3,429$
Net increase in fair value
Reclassifications into earnings:
Gains on sales of debt securities
Other income
Net realized gains reclassified into earnings
Net change
Available-for-sale marketable equity securities:
Net increase (decrease) in fair value 39 (15 ) 24 (86 ) $33 \quad$ (53 )
Net realized gains reclassified into earnings ${ }^{(2)}$
Net change
Debit valuation adjustments:
Net increase (decrease) in fair value
(153) $58 \quad(95 \quad$ ) (439 ) $167 \quad(272)$

33 (12 ) $21 \quad 12 \quad(5 \quad) 7$
(120) $46 \quad(74 \quad)(427$ ) $162 \quad(265)$

726 (269) 457 5,103 (1,939 ) 3,164

Net realized losses (2) (111) 33 ( 18 ) 172 ( 65 ) 107
Net realized losses reclassified into earnings ${ }^{(2)} 14 \quad(5 \quad) 9 \quad 12 \quad(5) 7$
Net change
Derivatives:
Net increase (decrease) in fair value
Reclassifications into earnings:
Net interest income $\quad 220 \quad(83) 137 \quad 328 \quad$ (123 ) 205
Personnel (71 ) 27 (44 ) $53 \quad(20$ ) 33
Net realized losses reclassified into earnings
Net change
Employee benefit plans:
Reclassifications into earnings:
$\begin{array}{cllllll}\text { Prior service cost } & 2 & - & 2 & 2 & - & 2\end{array}$
Net actuarial losses
$\left.\begin{array}{llllll}83 & (31 & ) & 52 & 48 & (19\end{array}\right) 29$

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$\left.\begin{array}{lllllllll}\text { Net realized losses reclassified into earnings }{ }^{(3)} & 85 & (31 & ) & 54 & 50 & (19 & ) & 31 \\ \text { Settlements, curtailments and other } & - & - & - & - & (8) & )(8)\end{array}\right)$ The six months ended June 30, 2017 included a pre-tax gain on derivatives and related income tax expense
${ }_{(1)}$ associated with the Corporation's net investment in its non-U.S. consumer credit card business, which was sold on June 1, 2017. The derivative gain was partially offset by a loss on the related foreign currency translation adjustment.
(2) Reclassifications of pre-tax AFS marketable equity securities, DVA and foreign currency are recorded in other income in the Consolidated Statement of Income.
(3) Reclassifications of pre-tax employee benefit plan costs are recorded in personnel expense in the Consolidated Statement of Income.

NOTE 13 Earnings Per Common Share
The calculation of earnings per common share (EPS) and diluted EPS for the three and six months ended June 30, 2017 and 2016 is presented below. For more information on the calculation of EPS, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

| (Dollars in millions, except per share information; shares in thousands) | Three Months Ended June 30 | Six Months Ended June 30 |  |
| :---: | :---: | :---: | :---: |
|  | 20172016 | 2017 | 2016 |
| Earnings per common share |  |  |  |
| Net income | \$5,269 \$ 4,783 | \$10,125 | \$ 8,255 |
| Preferred stock dividends | (361 ) (361 | (863 | (818 ) |
| Net income applicable to common shareholders | \$4,908 \$ 4,422 | \$9,262 | \$ 7,437 |
| Average common shares issued and outstanding | 10,013,5010,328,424 | 10,056,11 | $1110,308,241$ |
| Earnings per common share | \$0.49 \$ 0.43 | \$0.92 | \$ 0.72 |
| Diluted earnings per common share |  |  |  |
| Net income applicable to common shareholders | \$4,908 \$ 4,422 | \$9,262 | \$ 7,437 |
| Add preferred stock dividends due to assumed conversions | $75 \quad 75$ | 150 | 150 |
| Net income allocated to common shareholders | \$4,983 \$ 4,497 | \$9,412 | \$ 7,587 |
| Average common shares issued and outstanding | 10,013,5013,328,424 | 10,056,11 | $1110,308,241$ |
| Dilutive potential common shares ${ }^{(1)}$ | 808,566 730,743 | 812,320 | 771,698 |
| Total diluted average common shares issued and outstanding | 10,822,069,059,167 | 10,868,43 | 3111,079,939 |
| Diluted earnings per common share | \$0.46 \$ 0.41 | \$0.87 | \$ 0.68 |

${ }^{(1)}$ Includes incremental dilutive shares from restricted stock units, restricted stock and warrants.
The Corporation previously issued a warrant to purchase 700 million shares of the Corporation's common stock to the holder of the Series T Preferred Stock. The warrant may be exercised, at the option of the holder, through tendering the Series T Preferred Stock or paying cash. For both the three and six months ended June 30, 2017 and 2016, the 700 million average dilutive potential common shares were included in the diluted share count under the "if-converted" method.
For both the three and six months ended June 30, 2017 and 2016, 62 million average dilutive potential common shares associated with the Series L Preferred Stock were not included in the diluted share count because the result would have been antidilutive under the "if-converted" method. For the three and six months ended June 30, 2017, average options to purchase 18 million and 24 million shares of common stock were outstanding but not included in the computation of EPS because the result would have been antidilutive under the treasury stock method compared to 42 million and 48 million for the same periods in 2016. For both the three and six months ended June 30, 2017 and 2016, average warrants to purchase 122 million shares of common stock were outstanding but not included in the computation of EPS because the result would have been antidilutive under the treasury stock method, and average warrants to purchase 150 million shares of common stock were included in the diluted EPS calculation under the treasury stock method.

NOTE 14 Fair Value Measurements
Under applicable accounting standards, fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Corporation determines the fair values of its financial instruments under applicable accounting standards and conducts a review of its fair value hierarchy classifications on a quarterly basis. Transfers into or out of fair value hierarchy classifications are considered to be effective as of the beginning of the quarter in which they occur. During the six months ended June 30, 2017, there were no changes to valuation approaches or techniques that had, or are expected to have, a material impact on the

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Corporation's consolidated financial position or results of operations.
For more information regarding the fair value hierarchy and how the Corporation measures fair value and valuation processes and techniques see Note 1 - Summary of Significant Accounting Principles and Note 20 - Fair Value Measurements to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. The Corporation accounts for certain financial instruments under the fair value option. For additional information, see Note 15 - Fair Value Option.
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## Recurring Fair Value

Assets and liabilities carried at fair value on a recurring basis at June 30, 2017 and December 31, 2016, including financial instruments which the Corporation accounts for under the fair value option, are summarized in the following tables.
(Dollars in millions)
June 30, 2017
Fair Value Measurements
Level 1 Level 2 Level 3 Adjustments
Assets/Liabilities at Fair Value

Assets
Federal funds sold and securities borrowed or purchased under agreements to resell
Trading account assets:
U.S. Treasury and agency securities ${ }^{(2)}$

Corporate securities, trading loans and other
Equity securities
Non-U.S. sovereign debt
Mortgage trading loans, MBS and ABS:
U.S. government-sponsored agency guaranteed ${ }^{(2)}$

Mortgage trading loans, ABS and other MBS
Total trading account assets ${ }^{(3)}$
Derivative assets ${ }^{(4)}$
AFS debt securities:
U.S. Treasury and agency securities

Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Non-agency residential
Commercial
Non-U.S. securities
Other taxable securities
Tax-exempt securities
Total AFS debt securities
Other debt securities carried at fair value:
Mortgage-backed securities:
Agency-collateralized mortgage obligations
Non-agency residential
Non-U.S. securities
Other taxable securities
Total other debt securities carried at fair value
Loans and leases
Mortgage servicing rights ${ }^{(5)}$
Loans held-for-sale
Customer and other receivables
Other assets
Total assets
Liabilities
Interest-bearing deposits in U.S. offices

| $\$-$ | $\$ 50,758$ | $\$-$ | $\$-$ | $\$ 50,758$ |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |
| 40,147 | 776 | - | - | 40,923 |
| 259 | 28,313 | 1,777 | - | 30,349 |
| 60,435 | 27,568 | 229 | - | 88,232 |
| 13,451 | 13,927 | 506 | - | 27,884 |
|  |  |  |  |  |
| - | 19,530 | - | - | 19,530 |
| - | 8,219 | 1,232 | - | 9,451 |
| 114,292 | 98,333 | 3,744 | - | 216,369 |
| 7,156 | 499,252 | 3,970 | $(471,188$ | $) 39,190$ |
|  |  |  |  |  |
| 49,793 | 1,630 | - | - | 51,423 |
|  |  |  |  |  |
| - | 192,174 | - | - | 192,174 |
| - | 7,484 | - | - | 7,484 |
| - | 1,914 | - | - | 1,914 |
| - | 12,441 | - | - | 12,441 |
| 1,998 | 4,465 | 139 | - | 6,602 |
| - | 8,568 | 483 | - | 9,051 |
| - | 17,959 | 518 | - | 18,477 |
| 51,791 | 246,635 | 1,140 | - | 299,566 |


| - | 5 | - | - | 5 |
| :--- | :--- | :--- | :--- | :--- |
| - | 3,014 | 23 | - | 3,037 |
| 11,305 | 1,360 | - | - | 12,665 |
| - | 236 | - | - | 236 |
| 11,305 | 4,615 | 23 | - | 15,943 |
| - | 6,658 | 667 | - | 7,325 |
| - | - | 2,501 | - | 2,501 |
| - | 1,941 | 766 | - | 2,707 |
| - | 250 | - | - | 250 |
| 13,443 | 1,128 | 294 | - | 14,865 |
| $\$ 197,987$ | $\$ 909,570$ | $\$ 13,105$ | $\$(471,188$ | $)$ |

\$- \$456 \$- \$- \$456

- $31,997 \quad 135 \quad-\quad 32,132$

Federal funds purchased and securities loaned or sold under agreements to repurchase Trading account liabilities:
U.S. Treasury and agency securities

Equity securities
Non-U.S. sovereign debt
Corporate securities and other
Total trading account liabilities
Derivative liabilities ${ }^{(4)}$
Short-term borrowings
Accrued expenses and other liabilities
Long-term debt
Total liabilities

| 17,531 | 407 | - | - | 17,938 |
| :--- | :--- | :--- | :--- | :--- |
| 29,099 | 4,045 | - | - | 33,144 |
| 13,940 | 3,303 | - | - | 17,243 |
| 213 | 9,373 | 22 | - | 9,608 |
| 60,783 | 17,128 | 22 | - | 77,933 |
| 6,827 | 501,925 | 5,773 | $(479,645$ | $) 34,880$ |
| - | 1,572 | - | - | 1,572 |
| 15,968 | 1,301 | 9 | - | 17,278 |
| - | 27,427 | 1,646 | - | 29,073 |
| $\$ 83,578$ | $\$ 581,806$ | $\$ 7,585$ | $\$(479,645$ | $\$ 193,324$ |

(1) Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.
${ }^{(2)}$ Includes $\$ 20.1$ billion of GSE obligations.
Includes securities with a fair value of $\$ 15.1$ billion that were segregated in compliance with securities regulations
${ }^{(3)}$ or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet.
During the six months ended June 30, 2017, $\$ 1.8$ billion of derivative assets and $\$ 1.1$ billion of derivative
(4) liabilities were transferred from Level 1 to Level 2 and $\$ 373$ million of derivative assets and $\$ 335$ million of derivative liabilities were transferred from Level 2 to Level 1 based on the inputs used to measure fair value. For further disaggregation of derivative assets and liabilities, see Note 2 - Derivatives.
${ }_{\text {(5) }}$ MSRs include the $\$ 1.8$ billion core MSR portfolio held in Consumer Banking, the $\$ 211$ million non-core MSR portfolio held in All Other and the $\$ 505$ million non-U.S. MSR portfolio held in Global Markets.

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(Dollars in millions)

Assets
Federal funds sold and securities borrowed or purchased under agreements to resell
Trading account assets:
U.S. Treasury and agency securities (2)

Corporate securities, trading loans and other
Equity securities
Non-U.S. sovereign debt
Mortgage trading loans, MBS and ABS:
U.S. government-sponsored agency guaranteed (2)

Mortgage trading loans, ABS and other MBS
Total trading account assets ${ }^{(3)}$
Derivative assets (4)
AFS debt securities:
U.S. Treasury and agency securities

Mortgage-backed securities:
Agency
Agency-collateralized mortgage obligations
Non-agency residential
Commercial
Non-U.S. securities
Other taxable securities
Tax-exempt securities
Total AFS debt securities
Other debt securities carried at fair value:
Mortgage-backed securities:
Agency-collateralized mortgage obligations
Non-agency residential
Non-U.S. securities
Other taxable securities
Total other debt securities carried at fair value
Loans and leases
Mortgage servicing rights ${ }^{(5)}$
Loans held-for-sale
Debt securities in assets of business held for sale
Other assets
Total assets
Liabilities

| Interest-bearing deposits in U.S. offices | \$- | \$731 | \$- | \$ | \$ 731 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Federal funds purchased and securities loaned or sold under agreements to repurchase | - | 35,407 | 359 | - | 35,766 |
| Trading account liabilities: |  |  |  |  |  |
| U.S. Treasury and agency securities | 15,854 | 197 | - | - | 16,051 |
| Equity securities | 25,884 | 3,014 | - | - | 28,898 |

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| Non-U.S. sovereign debt | 9,409 | 2,103 | - | - | 11,512 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Corporate securities and other | 163 | 6,380 | 27 | - | 6,570 |
| Total trading account liabilities | 51,310 | 11,694 | 27 | - | 63,031 |
| Derivative liabilities ${ }^{(4)}$ | 7,173 | 615,896 | 5,244 | $(588,833$ | $) 39,480$ |
| Short-term borrowings | - | 2,024 | - | - | 2,024 |
| Accrued expenses and other liabilities | 12,978 | 1,643 | 9 | - | 14,630 |
| Long-term debt | - | 28,523 | 1,514 | - | 30,037 |
| Total liabilities | $\$ 71,461$ | $\$ 695,918$ | $\$ 7,153$ | $\$(588,833)$ | $\$ 185,699$ |

(1) Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.
${ }^{(2)}$ Includes $\$ 17.5$ billion of GSE obligations.
Includes securities with a fair value of $\$ 14.6$ billion that were segregated in compliance with securities regulations
${ }^{(3)}$ or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet.
During 2016, $\$ 2.3$ billion of derivative assets and $\$ 2.4$ billion of derivative liabilities were transferred from Level 1
(4) to Level 2 and $\$ 2.0$ billion of derivative assets and $\$ 1.8$ billion of derivative liabilities were transferred from Level 2 to Level 1 based on the inputs used to measure fair value. For further disaggregation of derivative assets and liabilities, see Note 2 - Derivatives.
(5) MSRs include the $\$ 2.1$ billion core MSR portfolio held in Consumer Banking, the $\$ 212$ million non-core MSR portfolio held in All Other and the $\$ 469$ million non-U.S. MSR portfolio held in Global Markets.

The following tables present a reconciliation of all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) during the three and six months ended June 30, 2017 and 2016, including net realized and unrealized gains (losses) included in earnings and accumulated OCI.

Level 3 - Fair Value Measurement ${ }^{(1)}$
Three Months Ended June 30, 2017
Gross

| (Dollars in millions) | Balance April 1 2017 |  |  |  | Change <br> in <br> Unrealized <br> Gains/(Losses) <br> Related <br> to |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  | to <br> Financial |
|  |  |  |  |  | Instruments |
|  |  |  |  |  | Still Held <br> (2) |

Trading account assets:
Corporate securities, trading loans and other
Equity securities
Non-U.S. sovereign debt
\$2,029 \$ $64 \$-\$ 119 \$(120) \$-\$(108) \$ 143 \$(350) \$ 1,777 \$ 30$

Mortgage trading loans, ABS
and other MBS
Total trading account assets
Net derivative assets (4)
2883

- 22 (47 )— $-\quad 30 \quad(67 \quad) 229 \quad-$
$527 \quad 12$
(16) $26(50 \quad)-(62 \quad) 69 \quad-\quad 506 \quad 12$

1,215 78
(1) 258 (314 )— (69 ) 76 (11 ) 1,232 53
$4,059 \quad 157 \quad(17) 425$ (531 )—— (239 ) $318 \quad$ (428 ) 3,744 95
AFS debt securities:
Non-U.S. securities
Other taxable securities
Tax-exempt securities
Total AFS debt securities
$(1,665)(372)-208(229)-274 \quad-\quad(19)(1,803)(368)$

Other debt securities carried at
$\begin{array}{llllllllllll}\text { fair value - Non-agency } & 24 & - & - & - & - & - & (1) & - & - & 23 & -\end{array}$
residential MBS
$\begin{array}{llllllllllllllll}\text { Loans and leases } \\ (5,6) & 702 & 6 & - & - & - & - & (34 & ) & - & (7 & ) & 667 & 6\end{array}$
Mortgage servicing rights ${ }^{(6,7)} 2,610 \quad 13 \quad-\quad-\quad 1 \quad 63(186)-\quad-\quad 2,501 \quad$ (65 )
$\left.\begin{array}{lllllllllllll}\text { Loans held-for-sale }^{(5)} & 792 & 42 & (9) & 2 & (19 & ) & (128 & ) & 100 & (14 & ) 766 & 26 \\ & 231 & (11 & ) & 12 & 2 & - & - & (4 & ) 64 & - & 294 & (6)\end{array}\right)$
Other assets $231 \quad(11 \quad) 12 \quad 2 \quad-\quad-\quad(4 \quad) 64 \quad-\quad 294 \quad$ (6)
Federal funds purchased and

agreements to repurchase ${ }^{(5)}$

(1) Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
(2) Includes gains/losses reported in earnings in the following income statement line items: Trading account
assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses)
and mortgage banking income (loss); MSRs - primarily mortgage banking income (loss); Long-term debt primarily trading account profits (losses). For MSRs, the amounts reflect the changes in modeled MSR fair value due to observed changes in interest rates, volatility, spreads and the shape of the forward swap curve, and periodic adjustments to the valuation model to reflect changes in the modeled relationships between inputs and projected cash flows, as well as changes in cash flow assumptions including cost to service.
Includes gains/losses in OCI related to unrealized gains/losses on AFS securities, foreign currency translation adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
${ }^{(4)}$ Net derivatives include derivative assets of $\$ 4.0$ billion and derivative liabilities of $\$ 5.8$ billion.
${ }^{(5)}$ Amounts represent instruments that are accounted for under the fair value option.
${ }^{(6)}$ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.
(7) Settlements represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.
Significant transfers into Level 3, primarily due to decreased price observability, during the three months ended June 30, 2017 included $\$ 318$ million of trading account assets, $\$ 100$ million of LHFS and $\$ 108$ million of long-term debt. Transfers occur on a regular basis for long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, during the three months ended June 30, 2017 included $\$ 428$ million of trading account assets and $\$ 157$ million of federal funds purchased and securities loaned or sold under agreements to repurchase.

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Level 3 - Fair Value Measurements ${ }^{1)}$
Three Months Ended June 30, 2016
Gross


Trading account assets:
Corporate securities, trading loans and other
Equity securities
Non-U.S. sovereign debt $572 \quad 50$
Mortgage trading loans, ABS
and other MBS
Total trading account assets
Net derivative assets (4) (315 )8
AFS debt securities:
Non-agency residential MBS $150 \quad$ - $\quad(2) 61$ - $\quad$ - $75 \quad$ ) - $\quad$ - 134 -
$\begin{array}{lllllllllll}\text { Other taxable securities } & 739 & 1 & (3) & - & - & - & (20 & ) & - & 717\end{array}$

$\begin{array}{lllllllllll}\text { Total AFS debt securities } & 1,451 & 1 & (8) & 61 & - & - & (95 & ) & - & 1,410\end{array}$
Other debt securities carried
 residential MBS
Loans and leases ${ }^{(5,6)} \quad 1,697(47 \quad) \quad-\quad — \quad-\quad 25 \quad(54 \quad) 1 \quad(163) 1,459 \quad$ (44) $)$

Mortgage servicing rights ${ }^{(6,}$ 7)


Other assets
375 (13 ) - $\quad$ - $\quad$ - (14 $)$ - $\quad$ - 348 (11 )
Federal funds purchased and securities loaned or sold under agreements to
$\left.\begin{array}{lllllllllll}(345 & ) & 32 & - & - & - & - & - & - & - & (313\end{array}\right) 31$
repurchase ${ }^{(5)}$
Trading account liabilities -
$\left.\begin{array}{llllllllllll}\text { Corporate securities and } & (28 & ) & 1 & - & 1 & - & - & - & - & - & (26\end{array}\right) 1$ other
Accrued expenses and other
liabilities ${ }^{(5)}$
Long-term debt ${ }^{(5)} \quad(1,814)(79 \quad)(11) 20 \quad-\quad(15477 \quad$ (359) $164 \quad$ (2,156 )(79 )
${ }^{(1)}$ Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
${ }^{(2)}$ Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses) and mortgage banking income (loss); MSRs - primarily mortgage banking income (loss); Long-term debt primarily trading account profits (losses). For MSRs, the amounts reflect the changes in modeled MSR fair value
due principally to observed changes in interest rates, volatility, spreads and the shape of the forward swap curve. Includes gains/losses in OCI related to unrealized gains/losses on AFS securities, foreign currency translation
(3) adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
${ }^{(4)}$ Net derivatives include derivative assets of $\$ 5.2$ billion and derivative liabilities of $\$ 5.8$ billion.
${ }^{(5)}$ Amounts represent instruments that are accounted for under the fair value option.
${ }^{(6)}$ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.
${ }_{\text {(7) }}$ Settlements represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.
Significant transfers into Level 3, primarily due to decreased price observability, during the three months ended June 30, 2016 included $\$ 146$ million of trading account assets and $\$ 359$ million of long-term debt. Transfers occur on a regular basis for long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, during the three months ended June 30, 2016 included $\$ 497$ million of trading account assets, $\$ 163$ million of loans and leases and $\$ 164$ million of long-term debt.

Level 3 - Fair Value Measurements ${ }^{1)}$

|  | Six Months Ended June 30, 2017 <br> Gross |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  | Change <br> in |
|  | Balance Total Gains | Gross | Gross | Unrealized Gains/(Losses) |
| (Dollars in millions) | January Realized/Unreasizes) in PurchSaks | Issuarfeetlementa | Transfersalance | Related |
|  | 1017 (2) (Lossed CI | Level | out of 2017 |  |
|  | 2017 (3) | 3 | Level 3 | Financial <br> Instruments |
|  |  |  |  | Still |
|  |  |  |  | Held ${ }^{(2)}$ |

Trading account assets:
Corporate securities, trading loans and other
Equity securities $281 \quad 15$
Non-U.S. sovereign debt $510 \quad 31$
Mortgage trading loans, ABS $\quad 1,211 \quad 185$ and other MBS
Total trading account assets $\quad 4,779379$
(7) $983(1,412)-\quad(436 \quad 496 \quad(1,038) 3,744 \quad 200$

Net derivative assets ${ }^{(4)} \quad(1,313)(846 \quad)-408(476)-\quad 444 \quad 29 \quad(49)(1,803)(773)$
AFS debt securities:
Non-U.S. securities 2291
Other taxable securities 5943
Tax-exempt securities 542 -
Total AFS debt securities $\quad 1,365 \quad 4$
Other debt securities carried at
$\begin{array}{llllllllll}\text { fair value - Non-agency } & 25 & (1) & - & - & - & (1) & - & - & 23\end{array}$
residential MBS

Mortgage servicing rights ${ }^{(6,7)} 2,747(14 \quad)-\quad-\quad 6 \quad 138(376)-\quad — \quad 2,501 \quad(182)$
Loans held-for-sale ${ }^{(5)} \quad 656 \quad 71 \quad$ (3) $2 \quad(155) — \quad(188) 415 \quad(32) 766 \quad 71$
Other assets $239(17 \quad) 12 \quad 2 \quad-\quad-\quad(6 \quad) 64 \quad-\quad 294 \quad(12)$
Federal funds purchased and securities loaned or sold under (359 ) (5 ) — — — (12) 36 (58 ) 263 (135 )(3) agreements to repurchase ${ }^{\text {(5) }}$
$\left.\begin{array}{lllllllll}\text { Trading account liabilities - } \\ \text { Corporate securities and other } & (27 & ) & 12 & - & 4 & (10 & )(1)- & - \\ \text { (22 }\end{array}\right)(1)$

Accrued expenses and other
liabilities ${ }^{(5)}$
Long-term debt ${ }^{(5)} \quad(1,514)(73 \quad)(11) 18-\quad(150) 283 \quad(286) 87 \quad(1,646)(38)$
${ }^{(1)}$ Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
${ }^{(2)}$ Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses) and mortgage banking income (loss); MSRs - primarily mortgage banking income (loss); Long-term debt primarily trading account profits (losses). For MSRs, the amounts reflect the changes in modeled MSR fair value due to observed changes in interest rates, volatility, spreads and the shape of the forward swap curve, and periodic

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adjustments to the valuation model to reflect changes in the modeled relationships between inputs and projected cash flows, as well as changes in cash flow assumptions including cost to service.
Includes gains/losses in OCI related to unrealized gains/losses on AFS securities, foreign currency translation
(3) adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
${ }^{(4)}$ Net derivatives include derivative assets of $\$ 4.0$ billion and derivative liabilities of $\$ 5.8$ billion.
${ }^{(5)}$ Amounts represent instruments that are accounted for under the fair value option.
${ }^{(6)}$ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.
(7) Settlements represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.
Significant transfers into Level 3, primarily due to decreased price observability, during the six months ended June 30, 2017 included $\$ 496$ million of trading account assets, $\$ 415$ million of LHFS and $\$ 286$ million of long-term debt. Transfers occur on a regular basis for long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, during the six months ended June 30, 2017 included $\$ 1.0$ billion of trading account assets and $\$ 263$ million of federal funds purchased and securities loaned or sold under agreements to repurchase.

Level 3 - Fair Value Measurements ${ }^{1)}$
Six Months Ended June 30, 2016
Gross


Trading account assets:
Corporate securities, trading
loans and other
Equity securities $407 \quad 82$
$\begin{array}{lll}\text { Non-U.S. sovereign debt } & 521 & 92\end{array}$
Mortgage trading loans, ABS and other MBS
Total trading account assets 5,634330
Net derivative assets ${ }^{(4)} \quad(441) 487 \quad-\quad 199(619)-\quad(111)(124)(39)(648) 308$
AFS debt securities:
Non-agency residential MBS $106 \quad-\quad 3 \quad 196$ (92 )— (79 ) — $\quad$ - 134 -

| Other taxable securities | 757 | 2 | $(6)-$ | - | - | $(36$ | $)$ | - |  | - |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| Tax-exempt securities | 569 | - | $(10)$ | 1 | - | - | $(1)$ | - | - | 559 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


Other debt securities carried at fair value - Non-agency $30 \quad(2 \quad) \quad-\quad-\quad-\quad-\quad-\quad-\quad-\quad 28 \quad-$ residential MBS
Loans and leases ${ }^{(5,6)} \quad 1,620(4 \quad) \quad-\quad 69 \quad-\quad 50 \quad(89 \quad) 6 \quad(193) 1,459 \quad 5$

$\left.\begin{array}{lllllllllllll}\text { Loans held-for-sale (5) } & 787 & 84 & 55 & 20 & (180 & ) & (52 & ) & 39 & (63 & ) & 690 \\ 88 \\ \text { Other assets } & 374 & (38 & ) & - & 34 & - & - & (24 & ) 2 & - & 348 & (33\end{array}\right)$
Federal funds purchased and
 under agreements to
repurchase ${ }^{(5)}$
Trading account liabilities -
$\begin{array}{lllllllllll}\text { Corporate securities and } & (21 & ) & 2 & - & 1 & (8 & ) & - & - & - \\ (26 & )\end{array}$
other
$\begin{array}{lllllllllllll}\text { Short-term borrowings }{ }^{(5)} & (30 & ) & 1 & - & - & - & - & 29 & - & - & - & -\end{array}$
$\begin{array}{lllllllll}\text { Accrued expenses and other }(9 & )- & - & - & - & - & - & - \\ \text { liabilities (5) }\end{array}$
Long-term debt ${ }^{(5)} \quad(1,513)(170 \quad)(18) 29-\quad(323133 \quad(545) 251 \quad(2,156)(152)$
${ }^{(1)}$ Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
${ }^{(2)}$ Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses) and mortgage banking income (loss); MSRs - primarily mortgage banking income (loss); Long-term debt -

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primarily trading account profits (losses). For MSRs, the amounts reflect the changes in modeled MSR fair value due principally to observed changes in interest rates, volatility, spreads and the shape of the forward swap curve. Includes gains/losses in OCI related to unrealized gains/losses on AFS securities, foreign currency translation
(3) adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option. For additional information, see Note 1 - Summary of Significant Accounting Principles to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
${ }^{(4)}$ Net derivatives include derivative assets of $\$ 5.2$ billion and derivative liabilities of $\$ 5.8$ billion.
${ }^{(5)}$ Amounts represent instruments that are accounted for under the fair value option.
${ }^{(6)}$ Issuances represent loan originations and MSRs recognized following securitizations or whole-loan sales.
(7) Settlements represent the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.
Significant transfers into Level 3, primarily due to decreased price observability, during the six months ended June 30, 2016 included $\$ 339$ million of trading account assets, $\$ 124$ million of net derivative assets and $\$ 545$ million of long-term debt. Transfers occur on a regular basis for long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, during the six months ended June 30, 2016 included $\$ 550$ million of trading account assets, $\$ 193$ million of loans and leases and $\$ 251$ million of long-term debt.

The following tables present information about significant unobservable inputs related to the Corporation's material categories of Level 3 financial assets and liabilities at June 30, 2017 and December 31, 2016.

Quantitative Information about Level 3 Fair Value Measurements at June 30, 2017



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securities of $\$ 483$ million, AFS debt securities - Tax-exempt securities of $\$ 518$ million, Loans and leases of $\$ 667$ million and LHFS of $\$ 766$ million.
${ }^{(2)}$ Includes models such as Monte Carlo simulation and Black-Scholes.
(3) Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.
(4) The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.
CPR $=$ Constant Prepayment Rate
CDR $=$ Constant Default Rate
MMBtu $=$ Million British thermal units
IR = Interest Rate
FX = Foreign Exchange
$\mathrm{n} / \mathrm{a}=$ not applicable
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Quantitative Information about Level 3 Fair Value Measurements at December 31, 2016

| (Dollars in millions) |  |  | Inputs |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Financial Instrument | Fair <br> Value | Valuation <br> Technique | Significant <br> Unobservable <br> Inputs | Ranges of Inputs | Weighted Average |  |
| Loans and Securities ${ }^{(1)}$ |  |  |  |  |  |  |
| Instruments backed by residential real estate assets | \$ 1,066 |  | Yield | 0\% to 50\% | 7 | \% |
| Trading account assets Mortgage trading loans, ABS and other MBS | 337 | Discounted cash flow, Market comparables | Prepayment speed | $\begin{aligned} & 0 \% \text { to } 27 \% \\ & \text { CPR } \end{aligned}$ | 14 | \% |
| Loans and leases | 718 |  | Default rate | $0 \% \text { to } 3 \%$ <br> CDR | 2 | \% |
| Loans held-for-sale | 11 |  | Loss severity | 0\% to 54\% | 18 | \% |
| Instruments backed by commercial real estate assets | \$317 |  | Yield | 0\% to 39\% | 11 | \% |
| Trading account assets Corporate securities, trading loans and other | 178 | Discounted cash flow, Market comparables | Price | \$0 to \$100 | \$65 |  |
| Trading account assets Mortgage trading loans, ABS and other MBS | 53 |  |  |  |  |  |
| Loans held-for-sale | 86 |  |  |  |  |  |
| Commercial loans, debt securities and other | \$4,486 |  | Yield | 1\% to $37 \%$ | 14 | \% |
| Trading account assets - |  |  |  |  |  |  |
| Corporate securities, trading loans and other | 2,565 |  | Prepayment speed | $5 \%$ to $20 \%$ | 19 | \% |
| Trading account assets -Non-U.S. sovereign debt Trading account assets - | 510 | Discounted cash flow, Market comparables | Default rate | 3\% to 4\% | 4 | \% |
| Mortgage trading loans, ABS and other MBS | 821 |  | Loss severity | 0\% to 50\% | 19 | \% |
| AFS debt securities Other taxable securities | 29 |  | Price | \$0 to \$292 | \$68 |  |
| Loans and leases | 2 |  | Duration | 0 to 5 years | 3 years |  |
| Loans held-for-sale | 559 |  | Enterprise value/EBITDA multiple | 34x | $\mathrm{n} / \mathrm{a}$ |  |
| Auction rate securities | \$ 1,141 | Discounted cash flow, |  | \$10 to \$100 | \$94 |  |
| Trading account assets Corporate securities, trading loans and other | 34 | Market comparables | Price |  |  |  |
| AFS debt securities Other taxable securities | 565 |  |  |  |  |  |

AFS debt securities -Tax-exempt securities

## MSRs



Total net derivative assets $\$(1,313)$
The categories are aggregated based upon product type which differs from financial statement classification. The following is a reconciliation to the line items in the table on page 120: Trading account assets - Corporate securities,
${ }_{\text {(1) }}$ trading loans and other of $\$ 2.8$ billion, Trading account assets - Non-U.S. sovereign debt of $\$ 510$ million, Trading account assets - Mortgage trading loans, ABS and other MBS of $\$ 1.2$ billion, AFS debt securities - Other taxable securities of $\$ 594$ million, AFS debt securities - Tax-exempt securities of $\$ 542$ million, Loans and leases of $\$ 720$ million and LHFS of $\$ 656$ million.
${ }^{(2)}$ Includes models such as Monte Carlo simulation and Black-Scholes.
(3) Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.
(4) The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.
CPR = Constant Prepayment Rate
CDR $=$ Constant Default Rate
EBITDA = Earnings before interest, taxes, depreciation and amortization
MMBtu $=$ Million British thermal units
IR $=$ Interest Rate
FX = Foreign Exchange
$\mathrm{n} / \mathrm{a}=$ not applicable
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In the previous tables, instruments backed by residential and commercial real estate assets include RMBS, commercial MBS, whole loans and mortgage CDOs. Commercial loans, debt securities and other include corporate CLOs and CDOs, commercial loans and bonds, and securities backed by non-real estate assets. Structured liabilities primarily include equity-linked notes that are accounted for under the fair value option.
The Corporation uses multiple market approaches in valuing certain of its Level 3 financial instruments. For example, market comparables and discounted cash flows are used together. For a given product, such as corporate debt securities, market comparables may be used to estimate some of the unobservable inputs and then these inputs are incorporated into a discounted cash flow model. Therefore, the balances disclosed encompass both of these techniques.
The level of aggregation and diversity within the products disclosed in the tables results in certain ranges of inputs being wide and unevenly distributed across asset and liability categories.
Sensitivity of Fair Value Measurements to Changes in Unobservable Inputs
Loans and Securities
A significant increase in market yields, default rates, loss severities or duration would result in a significantly lower fair value for long positions. Short positions would be impacted in a directionally opposite way. The impact of changes in prepayment speeds would have differing impacts depending on the seniority of the instrument and, in the case of CLOs, whether prepayments can be reinvested. A significant increase in price would result in a significantly higher fair value for long positions and short positions would be impacted in a directionally opposite way. Mortgage Servicing Rights
The weighted-average lives and fair value of MSRs are sensitive to changes in modeled assumptions. The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions. The weighted-average life represents the average period of time that the MSRs' cash flows are expected to be received. Absent other changes, an increase (decrease) to the weighted-average life would generally result in an increase (decrease) in the fair value of the MSRs. For example, a 10 percent or 20 percent decrease in prepayment rates, which impact the weighted-average life, could result in an increase in fair value of $\$ 92$ million or $\$ 193$ million, while a 10 percent or 20 percent increase in prepayment rates could result in a decrease in fair value of $\$ 85$ million or $\$ 165$ million. A 100 bp or 200 bp decrease in option-adjusted spread (OAS) levels could result in an increase in fair value of $\$ 80$ million or $\$ 165$ million, while a 100 bp or 200 bp increase in OAS levels could result in a decrease in
fair value of $\$ 74$ million or $\$ 144$ million. These sensitivities are hypothetical and actual amounts may vary materially. As the amounts indicate, changes in fair value based on variations in assumptions generally cannot be extrapolated because the relationship of the change in assumption to the change in fair value may not be linear. Also, the effect of a variation in a particular assumption on the fair value of MSRs that continue to be held by the Corporation is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which might magnify or counteract the sensitivities. In addition, these sensitivities do not reflect any hedge strategies that may be undertaken to mitigate such risk. The Corporation manages the risk in MSRs with derivatives such as options and interest rate swaps, which are not designated as accounting hedges, as well as securities including MBS and U.S. Treasury securities. The securities used to manage the risk in the MSRs are classified in other assets on the Consolidated Balance Sheet.
Structured Liabilities and Derivatives
For credit derivatives, a significant increase in market yield, upfront points (i.e., a single upfront payment made by a protection buyer at inception), credit spreads, default rates or loss severities would result in a significantly lower fair value for protection sellers and higher fair value for protection buyers. The impact of changes in prepayment speeds would have differing impacts depending on the seniority of the instrument.
Structured credit derivatives are impacted by credit correlation. Default correlation is a parameter that describes the degree of dependence among credit default rates within a credit portfolio that underlies a credit derivative instrument. The sensitivity of this input on the fair value varies depending on the level of subordination of the tranche. For senior tranches that are net purchases of protection, a significant increase in default correlation would result in a significantly higher fair value. Net short protection positions would be impacted in a directionally opposite way.

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For equity derivatives, commodity derivatives, interest rate derivatives and structured liabilities, a significant change in long-dated rates and volatilities and correlation inputs (e.g., the degree of correlation between an equity security and an index, between two different commodities, between two different interest rates, or between interest rates and foreign exchange rates) would result in a significant impact to the fair value; however, the magnitude and direction of the impact depend on whether the Corporation is long or short the exposure. For structured liabilities, a significant increase in yield or decrease in price would result in a significantly lower fair value. A significant decrease in duration may result in a significantly higher fair value.

Nonrecurring Fair Value
The Corporation holds certain assets that are measured at fair value, but only in certain situations (e.g., impairment) and these measurements are referred to herein as nonrecurring. The amounts below represent assets still held as of the reporting date for which a nonrecurring fair value adjustment was recorded during the three and six months ended June 30, 2017 and 2016.

Assets Measured at Fair Value on a Nonrecurring
Basis
(Dollars in millions)
Level Level Gains
23 (Losses)
Assets
Loans held-for-sale $\quad \$ 64$ \$- \$- \$ -
Loans and leases ${ }^{(1)} \quad-\quad 609$ (105) (201 )
Foreclosed properties ${ }^{(2,3)}-83 \quad(26)(35)$
Other assets $\quad 309-\quad$ (55) (137 )

|  | Months |
| :--- | :--- |
| June 30, | Endel |
| 2016 | June |
| Ended |  |
|  | 30, |
|  | 2016 |

Assets
Loans held-for-sale $\quad \$ 588 \$ 49$ \$(7) \$ (12 )
Loans and leases ${ }^{(1)} \quad-\quad 1,128$ (183) (322 )
Foreclosed properties ${ }^{(2,3)} 2 \quad 119 \quad(28)(37)$
Other assets 142 - (34) (47)
Includes $\$ 43$ million and $\$ 78$ million of losses on loans that were written down to a collateral value of zero during
${ }^{(1)}$ the three and six months ended June 30, 2017, compared to losses of $\$ 56$ million and $\$ 86$ million for the same periods in 2016.
Amounts are included in other assets on the Consolidated Balance Sheet and represent the carrying value of
(2) $f$ foreclosed properties that were written down subsequent to their initial classification as foreclosed properties. Losses on foreclosed properties include losses taken during the first 90 days after transfer of a loan to foreclosed properties.
(3)

Excludes $\$ 1.0$ billion and $\$ 1.3$ billion of properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans) as of June 30, 2017 and 2016.
The table below presents information about significant unobservable inputs related to the Corporation's nonrecurring Level 3 financial assets and liabilities at June 30, 2017 and December 31, 2016. Loans and leases backed by residential real estate assets represent residential mortgages where the loan has been written down to the fair value of the underlying collateral.

Quantitative Information about Nonrecurring Level 3 Fair Value Measurements


NOTE 15 Fair Value Option
The Corporation elects to account for certain financial instruments under the fair value option. For more information on the primary financial instruments for which the fair value option elections have been made, see Note 21 - Fair Value Option to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

The following tables provide information about the fair value carrying amount and the contractual principal outstanding of assets and liabilities accounted for under the fair value option at June 30, 2017 and December 31, 2016, and information about where changes in the fair value of assets and liabilities accounted for under the fair value option are included in the Consolidated Statement of Income for the three and six months ended June 30, 2017 and 2016.

Fair Value Option Elections

June 30, $2017 \quad$ December 31, 2016

| Fair | Contractual | Fair |  |  | Fair |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Value |  |  | Value |
|  |  | Carrying | Vair | Contractual | Carrying |
| Carrying | Principal | Amount | Carrying | Principal | Amount |
| Amount | Outstanding | Less | Amount | Outstanding | Le |
|  |  | Unpaid |  |  | Unpaid |
|  |  | Principal |  |  | Principa |
| \$50,758 | \$ 50,675 | \$ 83 | \$49,750 | \$ 49,615 | \$ 135 |
| 5,630 | 11,072 | $(5,442)$ | 6,215 | 11,557 | (5,342 ) |
| 9,879 | n/a | n/a | 8,206 | n/a | n/a |
| 7,325 | 7,340 | (15 ) | 7,085 | 7,190 | (105 ) |
| 2,707 | 4,287 | $(1,580)$ | 4,026 | 5,595 | (1,569 ) |
| 253 | 250 | 3 | 253 | 250 | 3 |
| 456 | 430 | 26 | 731 | 672 | 59 |
| 32,132 | 32,369 | (237 | 35,766 | 35,929 | (163 |
| 1,572 | 1,572 | - | 2,024 | 2,024 | - |
| 138 | n/a | n/a | 173 | n/a | n/a |
| 29,073 | 28,953 | 120 | 30,037 | 29,862 | 175 |

A significant portion of the loans reported as trading account assets are distressed loans which trade and were
${ }^{(1)}$ purchased at a deep discount to par, and the remainder are loans with a fair value near contractual principal outstanding.
(2) Includes structured liabilities with a fair value of $\$ 28.7$ billion and $\$ 29.7$ billion, and contractual principal outstanding of $\$ 28.6$ billion and $\$ 29.5$ billion at June 30, 2017 and December 31, 2016.
$\mathrm{n} / \mathrm{a}=$ not applicable
Gains (Losses) Relating to Assets and Liabilities Accounted for Under the Fair Value Option
(Dollars in millions)
Three Months Ended June 30, 2017
Trading Mortgage Other $\begin{array}{ll}\text { AccountBanking } & \text { Other } \\ \text { Income Total }\end{array}$ (Losses)(Loss) (Loss)
Federal funds sold and securities borrowed or purchased under agreements to resell $\$(8 \quad) \$-\quad \$-\quad \$(8)$ Loans reported as trading account assets

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| Trading inventory - othef ${ }^{1}$ ) | 522 | - | - | 522 |
| :---: | :---: | :---: | :---: | :---: |
| Consumer and commercial loans | 4 | - | 20 | 24 |
| Loans held-for-sale ${ }^{(2)}$ | (1 | ) 46 | 30 | 75 |
| Long-term deposits | 14 | - | 3 | 17 |
| Federal funds purchased and securities loaned or sold under agreements to repurchase | 2 | - | - | 2 |
| Short-term borrowings | (3 | ) - | - | (3 |
| Unfunded loan commitments | - | - | (4 | ) $(4$ |
| Long-term debt ${ }^{(3,4)}$ | 107 | - | (34 | ) 73 |
| Total | \$684 | \$ 46 | \$ 15 | \$745 |

Three Months Ended June 30, 2016
Federal funds sold and securities borrowed or purchased under agreements to resell $\$(9 \quad) \$-\quad \$-\quad \$(9)$
Loans reported as trading account assets $14 \quad-\quad$ - 14
Trading inventory - othe $^{1)} \quad$ (243 ) - $\quad$ (243
Consumer and commercial loans $\quad 15 \quad-\quad$ (31 ) (16 )
$\begin{array}{llllll}\text { Loans held-for-sale }{ }^{(2)} & 5 & 145 & 20 & 170\end{array}$
Other assets - - $\quad$ (5 ) (5 )
Long-term deposits $\quad(2 \quad)-\quad$ ( $\quad$ ( 10 )
Federal funds purchased and securities loaned or sold under agreements to repurchase
Unfunded loan commitments $\quad$ - $\quad$ - 163163
Long-term debt ${ }^{(3,4)} \quad(574)-\quad$ (23 ) (597 )
Total
\$(783) \$ 145 \$ 116 \$(522)
${ }_{(1)}$ The gains (losses) in trading account profits (losses) are primarily offset by gains (losses) on trading liabilities that hedge these assets.
${ }^{(2)}$ Includes the value of IRLCs on funded loans, including those sold during the period.
(3) The majority of the net gains (losses) in trading account profits relate to the embedded derivative in structured liabilities and are offset by gains (losses) on derivatives and securities that hedge these liabilities.
For the cumulative impact of changes in the Corporation's own credit spreads and the amount recognized in OCI,
(4) see Note 12 - Accumulated Other Comprehensive Income (Loss). For information on how the Corporation's own credit spread is determined, see Note 20 - Fair Value Measurements to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

Gains (Losses) Relating to Assets and Liabilities Accounted for Under the Fair Value Option
(Dollars in millions)

Federal funds sold and securities borrowed or purchased under agreements to resell
Loans reported as trading account assets
Trading inventory - othe ${ }^{1)}$
Consumer and commercial loans
Loans held-for-sale ${ }^{(2)}$
Long-term deposits
Federal funds purchased and securities loaned or sold under agreements to repurchase
Short-term borrowings
Unfunded loan commitments
Long-term debt ${ }^{(3,4)}$
Total

Six Months Ended June 30, 2017
Trading Mortgage
Account Banking
Profits Income
(Losses) (Loss)
$\left.\begin{array}{lllll}\$(20 & ) & \$- & \$- & \$(20\end{array}\right)$

Six Months Ended June 30, 2016
Federal funds sold and securities borrowed or purchased under agreements to resell
Loans reported as trading account assets
Trading inventory - other ${ }^{1)}$
Consumer and commercial loans
Loans held-for-sale (2)
Other assets
Long-term deposits
Federal funds purchased and securities loaned or sold under agreements to repurchase
Unfunded loan commitments
Long-term debt (3, 4)
Total
$\left.\begin{array}{lllll}\$(1 & ) & \$- & \$- & \$(1\end{array}\right)$
(1) The gains (losses) in trading account profits (losses) are primarily offset by gains (losses) on trading liabilities that hedge these assets.
${ }^{(2)}$ Includes the value of IRLCs on funded loans, including those sold during the period.
(3) The majority of the net gains (losses) in trading account profits relate to the embedded derivative in structured liabilities and are offset by gains (losses) on derivatives and securities that hedge these liabilities.
For the cumulative impact of changes in the Corporation's own credit spreads and the amount recognized in OCI,
(4) see Note 12 - Accumulated Other Comprehensive Income (Loss). For information on how the Corporation's own credit spread is determined, see Note 20 - Fair Value Measurements to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.

Gains (Losses) Related to Borrower-specific Credit Risk
for Assets Accounted for Under the Fair Value Option


Fair Value of Financial Instruments
June 30, 2017
Fair Value
(Dollars in millions) $\begin{aligned} & \text { Carrying } \\ & \text { Value }\end{aligned}$ Level 2 Level 3 Total
Financial assets
Loans $\quad \$ 884,114$ \$64,888 \$827,122 \$892,010
Loans held-for-sale 5,882 4,867 1,015 5,882
Financial liabilities
Deposits $\quad 1,262,9801,263,010-\quad 1,263,010$
Long-term debt $\quad 223,923 \quad 229,134 \quad 1,646 \quad 230,780$
December 31, 2016
Financial assets
Loans $\quad \$ 873,209$ \$71,793 \$815,329 \$887,122
Loans held-for-sale 9,066 8,082 984 9,066
Financial liabilities
Deposits $\quad 1,260,9341,261,086-\quad 1,261,086$
Long-term debt $\quad 216,823$ 220,071 1,514 221,585
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Commercial Unfunded Lending Commitments
Fair values were generally determined using a discounted cash flow valuation approach which is applied using market-based credit default swaps or internally developed benchmark credit curves. The Corporation accounts for certain loan commitments under the fair value option. The carrying values and fair values of the Corporation's commercial unfunded lending commitments were $\$ 895$ million and $\$ 4.2$ billion at June 30, 2017, and $\$ 937$ million and $\$ 4.9$ billion at December 31, 2016. Commercial unfunded lending commitments are primarily classified as Level 3. The carrying value of these commitments is classified in accrued expenses and other liabilities.

The Corporation does not estimate the fair values of consumer unfunded lending commitments because, in many instances, the Corporation can reduce or cancel these commitments by providing notice to the borrower. For more information on commitments, see Note 10 - Commitments and Contingencies.

## NOTE 17 Business Segment Information

The Corporation reports its results of operations through the following four business segments: Consumer Banking, GWIM, Global Banking and Global Markets, with the remaining operations recorded in All Other. For additional information, see Note 24 - Business Segment Information to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K. The tables below present net income (loss) and the components thereto (with net interest income on an FTE basis) for the three and six months ended June 30, 2017 and 2016, and total assets at June 30, 2017 and 2016 for each business segment, as well as All Other, including a reconciliation of the four business segments' total revenue, net of interest expense, on an FTE basis, and net income to the Consolidated Statement of Income, and total assets to the Consolidated Balance Sheet.

Results of Business Segments and All Other

| At and for the three months ended June 30 | Total Corporation ${ }^{(1)}$ |  | Consumer Banking |  |
| :--- | :--- | :--- | :--- | :--- |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 |
| Net interest income (FTE basis) | $\$ 11,223$ | $\$ 10,341$ | $\$ 5,960$ | $\$ 5,207$ |
| Noninterest income | 11,843 | 11,168 | 2,548 | 2,588 |
| Total revenue, net of interest expense (FTE basis) | 23,066 | 21,509 | 8,508 | 7,795 |
| Provision for credit losses | 726 | 976 | 834 | 726 |
| Noninterest expense | 13,726 | 13,493 | 4,409 | 4,418 |
| Income before income taxes (FTE basis) | 8,614 | 7,040 | 3,265 | 2,651 |
| Income tax expense (FTE basis) | 3,345 | 2,257 | 1,233 | 977 |
| Net income | $\$ 5,269$ | $\$ 4,783$ | $\$ 2,032$ | $\$ 1,674$ |
| Period-end total assets | $\$ 2,254,529 \$ 2,186,966$ | $\$ 735,176$ | $\$ 668,464$ |  |
|  |  |  |  |  |
|  | Global Wealth \& |  |  |  |
|  | Investment |  | Global Banking |  |
|  | Management |  |  |  |
|  | 2017 | 2016 | 2017 | 2016 |
|  | $\$ 1,597$ | $\$ 1,403$ | $\$ 2,711$ | $\$ 2,425$ |
| Net interest income (FTE basis) | 3,098 | 3,022 | 2,328 | 2,271 |
| Noninterest income | 4,695 | 4,425 | 5,039 | 4,696 |
| Total revenue, net of interest expense (FTE basis) | 11 | 14 | 15 | 199 |
| Provision for credit losses | 3,392 | 3,285 | 2,154 | 2,125 |
| Noninterest expense | 1,292 | 1,126 | 2,870 | 2,372 |
| Income before income taxes (FTE basis) | 488 | 421 | 1,084 | 874 |
| Income tax expense (FTE basis) | $\$ 804$ | $\$ 705$ | $\$ 1,786$ | $\$ 1,498$ |
| Net income | $\$ 274,746$ | $\$ 286,846$ | $\$ 410,580$ | $\$ 397,591$ |
| Period-end total assets |  |  |  |  |
|  | Global Markets | All Other |  |  |


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| :--- | :--- | :--- | :--- | :--- | :---: | :---: | :---: |
|  | 2017 | 2016 | 2017 | 2016 |  |  |  |
|  | $\$ 864$ | $\$ 1,088$ | $\$ 91$ | $\$ 218$ |  |  |  |
| Net interest income (FTE basis) | 3,082 | 3,221 | 787 | 66 |  |  |  |
| Noninterest income | 3,946 | 4,309 | 878 | 284 |  |  |  |
| Total revenue, net of interest expense (FTE basis) | 25 | $(5$ | $)(159$ | $) 42$ |  |  |  |
| Provision for credit losses | 2,649 | 2,583 | 1,122 | 1,082 |  |  |  |
| Noninterest expense | 1,272 | 1,731 | $(85$ | $)(840$ |  |  |  |
| Income (loss) before income taxes (FTE basis) | 442 | 618 | 98 | $(633$ |  |  |  |$)$

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Results of Business Segments and All Other

| At and for the six months ended June 30 | Total Corporation ${ }^{(1)}$ |  | Consumer Banking |  |
| :--- | :--- | :--- | :--- | :--- |
| (Dollars in millions) | 2017 | 2016 | 2017 | 2016 |
| Net interest income (FTE basis) | $\$ 22,478$ | $\$ 21,041$ | $\$ 11,741$ | $\$ 10,535$ |
| Noninterest income | 23,033 | 21,473 | 5,051 | 5,117 |
| Total revenue, net of interest expense (FTE basis) | 45,511 | 42,514 | 16,792 | 15,652 |
| Provision for credit losses | 1,561 | 1,973 | 1,672 | 1,257 |
| Noninterest expense | 28,574 | 28,309 | 8,818 | 8,959 |
| Income before income taxes (FTE basis) | 15,376 | 12,232 | 6,302 | 5,436 |
| Income tax expense (FTE basis) | 5,251 | 3,977 | 2,378 | 2,000 |
| Net income | $\$ 10,125$ | $\$ 8,255$ | $\$ 3,924$ | $\$ 3,436$ |
| Period-end total assets | $\$ 2,254,529 \$ 2,186,966$ | $\$ 735,176$ | $\$ 668,464$ |  |


| Net interest income (FTE basis) | $\$ 3,157$ | $\$ 2,916$ | $\$ 5,486$ | $\$ 4,969$ |
| :--- | :--- | :--- | :--- | :--- |
| Noninterest income | 6,130 | 5,978 | 4,508 | 4,181 |
| Total revenue, net of interest expense (FTE basis) | 9,287 | 8,894 | 9,994 | 9,150 |
| Provision for credit losses | 34 | 39 | 32 | 752 |
| Noninterest expense | 6,722 | 6,555 | 4,317 | 4,299 |
| Income before income taxes (FTE basis) | 2,531 | 2,300 | 5,645 | 4,099 |
| Income tax expense (FTE basis) | 955 | 853 | 2,130 | 1,509 |
| Net income | $\$ 1,576$ | $\$ 1,447$ | $\$ 3,515$ | $\$ 2,590$ |
| Period-end total assets | $\$ 274,746$ | $\$ 286,846$ | $\$ 410,580$ | $\$ 397,591$ |

$\left.\begin{array}{lllll}\text { Net interest income (FTE basis) } & \$ 1,913 & \$ 2,272 & \$ 181 & \$ 349 \\ \text { Noninterest income } & 6,741 & 5,987 & 603 & 210 \\ \text { Total revenue, net of interest expense (FTE basis) } & 8,654 & 8,259 & 784 & 559 \\ \text { Provision for credit losses } & 8 & 4 & (185 & )(79 \\ \text { Noninterest expense } & 5,406 & 5,032 & 3,311 & 3,464 \\ \text { Income (loss) before income taxes (FTE basis) } & 3,240 & 3,223 & (2,342 & )(2,826 \\ \text { Income tax expense (benefit) (FTE basis) } & 1,113 & 1,138 & (1,325 & )(1,523\end{array}\right)$

Business Segment Reconciliations

| Three Months |  |  | Six Months Ended June |  |
| :--- | :--- | :--- | :--- | :---: |
| Ended June 30 | 30 |  |  |  |
| 2017 | 2016 | 2017 | 2016 |  |
| $\left.\begin{array}{llll}\$ 22,188 & \$ 21,225 & \$ 44,727 & \$ 41,955 \\ & & & \\ 104 & 137 & 59 & 31 \\ 774 & 147 & 725 & 528 \\ (237 & )(223 & ) & (434\end{array}\right)(438$ |  |  |  |  |$)$

Consolidated revenue, net of interest expense
Segments' total net income
Adjustments, net-of-taxes ${ }^{(2)}$ :
ALM activities
Liquidating businesses and other
Consolidated net income
\$22,829 \$21,286 \$45,077 \$42,076
5,452 4,990 11,142 9,558
(86 ) (36 ) (265 ) (275 )
(97 ) (171 ) (752 ) (1,028 )
\$5,269 $\quad \$ 4,783 \quad \$ 10,125 \quad \$ 8,255$

Segments' total assets
June 30
20172016
\$2,053,695 \$1,930,329
Adjustments ${ }^{(2)}$ :
$\begin{array}{lll}\text { ALM activities, including securities portfolio } & 620,502 & 619,417\end{array}$
Liquidating businesses and other
Elimination of segment asset allocations to match liabilities
Consolidated total assets
97,993 129,560
(517,661 )(492,340 )
${ }^{(1)}$ There were no material intersegment revenues.
(2) Adjustments include consolidated income, expense and asset amounts not specifically allocated to individual business segments.

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## Glossary

Alt-A Mortgage - A type of U.S. mortgage that is considered riskier than A-paper, or "prime," and less risky than "subprime," the riskiest category. Alt-A interest rates therefore tend to be between those of prime and subprime consumer real estate loans. Typically, Alt-A mortgages are characterized by borrowers with less than full documentation, lower credit scores and higher LTVs.
Assets in Custody - Consist largely of custodial and non-discretionary trust assets excluding brokerage assets administered for clients. Trust assets encompass a broad range of asset types including real estate, private company ownership interest, personal property and investments.
Assets Under Management (AUM) - The total market value of assets under the investment advisory and/or discretion of GWIM which generate asset management fees based on a percentage of the assets' market values. AUM reflects assets that are generally managed for institutional, high net worth and retail clients, and are distributed through various investment products including mutual funds, other commingled vehicles and separate accounts.
Banking Book - All on- and off-balance sheet financial instruments of the Corporation except for those positions that are held for trading purposes.
Carrying Value (with respect to loans) - The amount at which a loan is recorded on the balance sheet. For loans recorded at amortized cost, carrying value is the unpaid principal balance net of unamortized deferred loan origination fees and costs and unamortized purchase premiums or discounts, less net charge-offs and interest payments applied as a reduction of principal under the cost recovery method for loans that have been on nonaccrual status. For PCI loans, the carrying value equals fair value upon acquisition adjusted for subsequent cash collections and yield accreted to date. For credit card loans, the carrying value also includes interest that has been billed to the customer. For loans classified as held-for-sale, carrying value is the lower of carrying value as described in the sentences above, or fair value. For loans where we have elected the fair value option, the carrying value is fair value.
Client Brokerage Assets - Client assets which are held in brokerage accounts, including non-discretionary brokerage and fee-based assets that generate brokerage income and asset management fee revenue.
Committed Credit Exposure - Includes any funded portion of a facility plus the unfunded portion of a facility on which the lender is legally bound to advance funds during a specified period under prescribed conditions.

Credit Derivatives - Contractual agreements that provide protection against a credit event on one or more referenced obligations. The nature of a credit event is established by the protection purchaser and the protection seller at the inception of the transaction, and such events generally include bankruptcy or insolvency of the referenced credit entity, failure to meet payment obligations when due, as well as acceleration of indebtedness and payment repudiation or moratorium. The purchaser of the credit derivative pays a periodic fee in return for a payment by the protection seller upon the occurrence, if any, of such a credit event. A CDS is a type of a credit derivative.
Credit Valuation Adjustment (CVA) - A portfolio adjustment required to properly reflect the counterparty credit risk exposure as part of the fair value of derivative instruments.
Debit Valuation Adjustment (DVA) - A portfolio adjustment required to properly reflect the Corporation's own credit risk exposure as part of the fair value of derivative instruments and/or structured liabilities.
Funding Valuation Adjustment (FVA) - A portfolio adjustment required to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to use the collateral it receives.
Interest Rate Lock Commitment (IRLC) - Commitment with a loan applicant in which the loan terms, including interest rate and price, are guaranteed for a designated period of time subject to credit approval.
Letter of Credit - A document issued on behalf of a customer to a third party promising to pay the third party upon presentation of specified documents. A letter of credit effectively substitutes the issuer's credit for that of the customer. Loan-to-value (LTV) - A commonly used credit quality metric. LTV is calculated as the outstanding carrying value of the loan divided by the estimated value of the property securing the loan. Estimated property values are generally determined through the use of automated valuation models (AVMs) or the CoreLogic Case-Shiller Index. An AVM is a tool that estimates the value of a property by reference to large volumes of market data including sales of comparable properties and price trends specific to the MSA in which the property being valued is located. CoreLogic Case-Shiller is a widely used index based on data from repeat sales of single family homes. CoreLogic Case-Shiller indexed-based values are reported on a three-month or one-quarter lag.

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Margin Receivable - An extension of credit secured by eligible securities in certain brokerage accounts.
Matched Book - Repurchase and resale agreements or securities borrowed and loaned transactions where the overall asset and liability position is similar in size and/or maturity. Generally, these are entered into to accommodate customers where the Corporation earns the interest rate spread.
Mortgage Servicing Rights (MSR) - The right to service a mortgage loan when the underlying loan is sold or securitized. Servicing includes collections for principal, interest and escrow payments from borrowers and accounting for and remitting principal and interest payments to investors.
Net Interest Yield - Net interest income divided by average total interest-earning assets.
Nonperforming Loans and Leases - Includes loans and leases that have been placed on nonaccrual status, including nonaccruing loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. Loans accounted for under the fair value option, PCI loans and LHFS are not reported as nonperforming loans and leases. Credit card receivables, residential mortgage loans that are insured by the FHA or through long-term credit protection agreements with FNMA and FHLMC (fully-insured loan portfolio) and certain other consumer loans are not placed on nonaccrual status and are, therefore, not reported as nonperforming loans and leases.
Operating Margin - Income before income taxes divided by total revenue, net of interest expense.
Pay Option Loans - Pay option adjustable-rate mortgages have interest rates that adjust monthly and minimum required payments that adjust annually. During an initial five- or ten-year period, minimum required payments may increase by no more than 7.5 percent. If payments are insufficient to pay all of the monthly interest charges, unpaid interest is added to the loan balance (i.e., negative amortization) until the loan balance increases to a specified limit, at which time a new monthly payment amount adequate to repay the loan over its remaining contractual life is established.

Prompt Corrective Action (PCA) - A framework established by the U.S. banking regulators requiring banks to maintain certain levels of regulatory capital ratios, comprised of five categories of capitalization: "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized" and "critically undercapitalized." Insured depository institutions that fail to meet certain of these capital levels are subject to increasingly strict limits on their activities, including their ability to make capital distributions, pay management compensation, grow assets and take other actions.
Purchased Credit-impaired (PCI) Loan - A loan purchased as an individual loan, in a portfolio of loans or in a business combination with evidence of deterioration in credit quality since origination for which it is probable, upon acquisition, that the investor will be unable to collect all contractually required payments. These loans are recorded at fair value upon acquisition.
Subprime Loans - Although a standard industry definition for subprime loans (including subprime mortgage loans) does not exist, the Corporation defines subprime loans as specific product offerings for higher risk borrowers, including individuals with one or a combination of high credit risk factors, such as low FICO scores, high debt to income ratios and inferior payment history.
Troubled Debt Restructurings (TDRs) - Loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. Certain consumer loans for which a binding offer to restructure has been extended are also classified as TDRs. Concessions could include a reduction in the interest rate to a rate that is below market on the loan, payment extensions, forgiveness of principal, forbearance, loans discharged in bankruptcy or other actions intended to maximize collection. Secured consumer loans that have been discharged in Chapter 7 bankruptcy and have not been reaffirmed by the borrower are classified as TDRs at the time of discharge from bankruptcy.
Value-at-Risk (VaR) - VaR is a model that simulates the value of a portfolio under a range of hypothetical scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss the portfolio is expected to experience with a given confidence level based on historical data. A VaR model is an effective tool in estimating ranges of potential gains and losses on our trading portfolios.

Acronyms
ABS Asset-backed securities
AFS Available-for-sale
ALM Asset and liability management
AUM Assets under management
BANA Bank of America, National Association
BHC Bank holding company
bps basis points
CCAR Comprehensive Capital Analysis and Review
CDO Collateralized debt obligation
CDS Credit default swap
CLO Collateralized loan obligation
CLTV Combined loan-to-value
CVA Credit valuation adjustment
DVA Debit valuation adjustment
EPS Earnings per common share
ERC Enterprise Risk Committee
FASB Financial Accounting Standards Board
FCA Financial Conduct Authority
FDIC Federal Deposit Insurance Corporation
FHA Federal Housing Administration
FHLB Federal Home Loan Bank
FHLMCFreddie Mac
FICC Fixed-income, currencies and commodities
FICO Fair Isaac Corporation (credit score)
FNMA Fannie Mae
FTE Fully taxable-equivalent
FVA Funding valuation adjustment
GAAP Accounting principles generally accepted in the United States of America
GLS Global Liquidity Sources
GNMA Government National Mortgage Association
GPI Global Principal Investments
GSE Government-sponsored enterprise
G-SIB Global systemically important bank
GWIM Global Wealth \& Investment Management
HELOC Home equity line of credit
HQLA High Quality Liquid Assets
HTM Held-to-maturity
ICAAP Internal Capital Adequacy Assessment Process
IMM Internal models methodology
IRLC Interest rate lock commitment
ISDA International Swaps and Derivatives Association, Inc.
LCR Liquidity Coverage Ratio
LHFS Loans held-for-sale
LIBOR London InterBank Offered Rate
LTV Loan-to-value
MBS Mortgage-backed securities
MD\&A Management's Discussion and Analysis of Financial Condition and Results of Operations
MI Mortgage insurance

| MLGWMMerrill Lynch Global Wealth Management |  |  |
| :--- | :--- | :---: |
| MLI | Merrill Lynch International |  |
| MLPCC | Merrill Lynch Professional Clearing Corp |  |
| MLPF\&S | Merrill Lynch, Pierce, Fenner \& Smith Incorporated |  |
| MSA | Metropolitan Statistical Area |  |
| MSR | Mortgage servicing right |  |
| NSFR | Net Stable Funding Ratio |  |
| OAS | Option-adjusted spread |  |
| OCI | Other comprehensive income |  |
| OTC | Over-the-counter |  |
| OTTI | Other-than-temporary impairment |  |
| PCA | Prompt Corrective Action |  |
| PCI | Purchased credit-impaired |  |
| PPI | Payment protection insurance |  |
| RMBS | Residential mortgage-backed securities |  |
| RSU | Restricted stock unit |  |
| SBLC | Standby letter of credit |  |
| SEC | Securities and Exchange Commission |  |
| SLR | Supplementary leverage ratio |  |
| TDR | Troubled debt restructurings |  |
| TLAC | Total Loss-Absorbing Capacity |  |
| TTF | Time-to-required funding |  |
| VA | U.S. Department of Veterans Affairs |  |
| VaR | Value-at-Risk |  |
| VIE | Variable interest entity |  |

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Part II. Other Information
Bank of America Corporation and Subsidiaries
Item 1. Legal Proceedings
See Litigation and Regulatory Matters in Note 10 - Commitments and Contingencies to the Consolidated Financial Statements, which is incorporated by reference in this Item 1, for litigation and regulatory disclosure that supplements the disclosure in Note 12 - Commitments and Contingencies to the Consolidated Financial Statements of the Corporation's 2016 Annual Report on Form 10-K.
Item 1A. Risk Factors
There are no material changes from the risk factors set forth under Part 1, Item 1A. Risk Factors of the Corporation's 2016 Annual Report on Form 10-K.
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds
The table below presents share repurchase activity for the three months ended June 30, 2017. The primary source of funds for cash distributions by the Corporation to its shareholders is dividends received from its banking subsidiaries. Each of the banking subsidiaries is subject to various regulatory policies and requirements relating to the payment of dividends, including requirements to maintain capital above regulatory minimums. All of the Corporation's preferred stock outstanding has preference over the Corporation's common stock with respect to payment of dividends.

| (Dollars in millions, except per share information; shares in thousands) | Common Shares | Weighted-Averag | Shares |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Purchased | Remaining |
|  |  |  |  | Buyback |
|  | Repurchased (1) | Per Share Price | Publicly | Amounts |
|  |  |  | Announce | ${ }^{(2)}$ |
|  |  |  | Programs |  |
| April 1-30, 2017 | 20,305 | \$ 23.07 | 20,290 | \$ 1,799 |
| May 1-31, 2017 | 53,038 | 23.53 | 53,035 | 551 |
| June 1-30, 2017 | 22,984 | 22.63 | 22,982 | 31 |
| Three months ended June 30, 2017 | 96,327 | 23.22 |  |  |

Includes shares of the Corporation's common stock acquired by the Corporation in connection with satisfaction of
${ }^{(1)}$ tax withholding obligations on vested restricted stock or restricted stock units and certain forfeitures and terminations of employment-related awards under equity incentive plans.
On January 13, 2017, the Corporation announced that the Board approved the repurchase of an additional $\$ 1.8$ billion of common stock during the first and second quarters of 2017. Amounts shown in this column include shares repurchased under this additional repurchase authority in addition to the previously announced repurchases
(2) associated with the 2016 CCAR capital plan. During the three months ended June 30, 2017, pursuant to the Board's authorization, the Corporation repurchased $\$ 2.2$ billion of common stock, which included common stock to offset equity-based compensation awards. For additional information, see Capital Management -- CCAR and Capital Planning on page 28 and Note 11 - Shareholders' Equity to the Consolidated Financial Statements.
The Corporation did not have any unregistered sales of equity securities during the three months ended June 30, 2017.

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## Item 6. Exhibits

Amended and Restated Certificate of Incorporation of the Corporation, as in effect on the date
Exhibit 3(a) hereof, incorporated by reference to Exhibit 3(a) of the Corporation's Quarterly Report on Form 10-Q (File No. 1-6523) for the quarterly period ended March 31, 2016 filed on May 2, 2016

Amended and Restated Bylaws of the Corporation, as in effect on the date hereof, incorporated by Exhibit 3(b) reference to Exhibit 3.1 of the Corporation's Current Report on Form 8-K (File No. 1-6523) filed on March 20, 2015

Exhibit $10 \quad$ Third Amendment to Aircraft Time Sharing Agreement dated July 10, 2017 between Bank of America, N.A. and Brian T. Moynihan (1,2)

Exhibit 11
Earnings Per Share Computation - included in Note 13 - Earnings Per Common Share to the Consolidated Financial Statements ${ }^{(1)}$

Exhibit $12 \quad$ Ratio of Earnings to Fixed Charges ${ }^{(1)}$
Ratio of Earnings to Fixed Charges and Preferred Dividends ${ }^{(1)}$
Exhibit 31(a) Certification of the Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of $2002{ }^{(1)}$

Exhibit 31(b) Certification of the Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of $2002{ }^{(1)}$

Exhibit 32(a) Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of $2002{ }^{(1)}$

Exhibit 32(b)
Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (1)

Exhibit 101.INS XBRL Instance Document ${ }^{(1)}$
Exhibit 101.SCH XBRL Taxonomy Extension Schema Document ${ }^{(1)}$
Exhibit 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document ${ }^{(1)}$
Exhibit 101.LAB XBRL Taxonomy Extension Label Linkbase Document ${ }^{(1)}$
Exhibit 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document ${ }^{(1)}$
Exhibit 101.DEF XBRL Taxonomy Extension Definitions Linkbase Document ${ }^{(1)}$
${ }^{(1)}$ Filed herewith.
${ }^{(2)}$ Exhibit is a management contract or compensatory plan or arrangement.

## Signature

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Bank of America
Corporation
Registrant

Date: July 31, 2017

/s/ Rudolf<br>A. Bless<br>Rudolf A.<br>Bless<br>Chief<br>Accounting<br>Officer

Index to Exhibits
Exhibit No. Description
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Exhibit 10
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Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to
Exhibit 101.INS XBRL Instance Document ${ }^{(1)}$
Exhibit 101.SCH XBRL Taxonomy Extension Schema Document ${ }^{(1)}$

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Exhibit 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document ${ }^{(1)}$
Exhibit 101.LAB XBRL Taxonomy Extension Label Linkbase Document ${ }^{(1)}$
Exhibit 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document ${ }^{(1)}$
Exhibit 101.DEF XBRL Taxonomy Extension Definitions Linkbase Document ${ }^{(1)}$
${ }^{(1)}$ Filed herewith.
${ }^{(2)}$ Exhibit is a management contract or compensatory plan or arrangement.


[^0]:    Bank of America
    4

[^1]:    Bank of America
    14

[^2]:    Bank of America
    16

[^3]:    Bank of America

[^4]:    Balance Sheet

[^5]:    Bank of America
    22

[^6]:    Bank of America 30

[^7]:    Bank of America 34

[^8]:    ${ }_{(1)}$ Represents the total long-term debt included in the liabilities of consolidated variable interest entities (VIEs) on the Consolidated Balance Sheet.

[^9]:    Bank of America 44

[^10]:    Bank of America
    50

[^11]:    Bank of America
    58

[^12]:    Bank of America
    62

[^13]:    Bank of America 64

[^14]:    Bank of America
    66

[^15]:    Bank of America
    68

[^16]:    Bank of America
    70

[^17]:    Bank of America72

[^18]:    Bank of America
    76

[^19]:    Bank of America
    78

[^20]:    Bank of America

[^21]:    Bank of America 84

[^22]:    Bank of America 90

[^23]:    Bank of America 96

[^24]:    Bank of America

[^25]:    Bank of America 106

[^26]:    Bank of America
    108

[^27]:    Bank of America
    112

[^28]:    Bank of America
    114

[^29]:    Bank of America

[^30]:    Bank of America
    132

